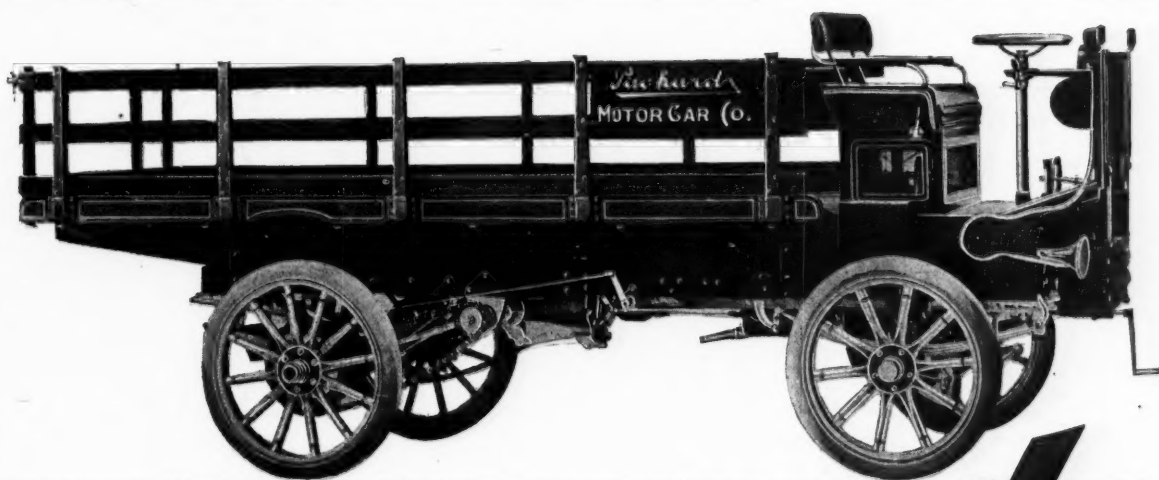


# MOTOR AGE

Vol. VII No. 16

CHICAGO, APRIL 20, 1905

Ten Cents



**I**N presenting the Packard Motor Truck, we offer a vehicle for commercial purposes, the design of which is based upon experiments extending over a period of two years with different constructions of business wagons. This particular type of car has seen almost every kind of commercial service during all of an exceptionally severe winter, and is now offered in full confidence that it is worthy to bear the Packard name into new fields.

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ARE GOOD TIRES**



I SAID TO DAD THE OTHER DAY  
"DAD, THOSE RUSSIAN FELLOWS  
LOOK LIKE THEY COULD LICK  
THE STUFFIN' OUT OF THEM  
JAPS." "YES," SAYS HE,  
"AND THERE ARE PLENTY  
OF TIRES THAT LOOK  
LIKE THEY COULD  
WEAR AS WELL  
AS MORGAN &  
WRIGHT'S"

Our tires are "good" tires to us because we know they are made from the highest grade materials throughout, by experts who know how to make the best possible use of such material. They are "good" tires to automobilists because they stand the racket day in and day out without making any ado about it.

Does a guarantee of such service interest you?

**Clincher—Perfected Dunlop—Improved Cushion.**



Rims branded in the channel with this copyrighted mark have been inspected and pronounced perfect. We guarantee our tires on all rims so branded.

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# MOTOR AGE

VOL. VII. No. 16

CHICAGO, APRIL 20, 1905

\$2.00 Per Year

## A SHOW IN "WILD AND WOOLLY" LAND



**D**ENVER, COL., April 12—The largest exhibition of motor cars ever seen in the west opened to a large audience in Coliseum hall last evening. Long before the hour set for opening cars were hurrying up and down the streets near the hall and crowds were waiting around the doors. Denver clearly demonstrated her ability to keep up with eastern cities in this respect and although the hall is rather small the management found space for nearly all those who wished to exhibit. Every exhibit space was crowded with fully equipped machines, many of which had canopy or cape tops. In a few stands the striped chassis were shown and these became the feature of the show. All of the local dealers were represented.

As on opening nights in the east, society came forth in all its adornment, the ladies in new spring gowns and pre-Easter millinery and the gentlemen in regulation evening white and black. Mayor and Mrs. Robert Speer were among the earliest arrivals and spent the entire evening examining the machines and chatting with exhibitors and demonstrators on the new features of the cars. Conspicuous in the crowd were the members of the Denver Automobile Club, who, with their ladies, "did" the show from end to end and all

seemed pleased with the boom Denver motoring is bound to receive from the show.

Although there was not any attempt at extensive decorations, it was a sight pleasing to the eye, as well as for the mind to contemplate, to stand in the galleries and look down on the crowds surging back and forth through the aisles and booths under the glare of hundreds of electric lights which studded the many-colored bunting and American flags.

A part of the scheme of decoration in the hall betrays a coming incident in automobiling that is dear to the heart of all Denver motorists and which promises to figure favorably among the several national contests. This is a decorative frieze showing views of the route of the Pike's Peak climb scheduled for the coming autumn, as well as many favorite touring scenes in the surrounding district. Most of the views are enlarged photographs which depict, in favorable light, the beauties of mountain and valley that may be enjoyed in a day's tour.

Although Denver is enjoying its first show, this fact would not be apparent to the visitor, as all the "trimmings" common to other shows as the results of additions year after year, are on hand. Outside of Coliseum hall the line of demonstrating cars reflects creditably on the judgment of the western buyer who is already onto the game, knowing that after all demonstration is the important feat-

ure of car buying. Unlike many other places Denver absolutely revels in streets and driveways well suited for demonstration work as incline and decline abound in and around the city.

To be even more practical than ordinarily a few exhibitors created a furore of excitement by announcing that the motors of their cars would be run by their own power in Coliseum hall, but manager G. A. Wahlgreen restored calm by positively stating that all exhibitors must obey regulations, which meant that during the week motors will remain passive in the hall.

While the list of exhibitors is not large, the machines exhibited are representative. The small runabouts, many of which have made themselves almost immortal here in the west by their mountain-scaling performances and desert trips, are side by side with the high-priced, high-powered touring car, so often looked upon as suitable only for well-made roads and not mountain passes. No greater evidence is met at the show than these big cars of the permanent hold automobiling has gained on western inhabitants. Last year these big machines were practically unknown in many places, but time has shown that the honors must be divided and the glories of the mountain tour are to be shared with the big car.

Denver, with its fine roads and boulevards, many of which extend for miles into the surrounding country, should eventually be the great selling center of the west. In the city all streets are paved with asphalt and while in places the grades are steep, conditions are such that the district and city can aptly be termed a motorists' paradise.

It is difficult to discern accurately the "trend of the show," but from conversations



THE DEMONSTRATORS AT THE DENVER SHOW

with a few of the exhibitors it was discovered that runabouts and touring cars shared evenly in the eye of the visitors. Many who drove small cars a year ago are looking for bigger models this season, while those who are looking for their first machine are not so ambitious, confining their attentions to the run-about classes and small touring machines. While Denver boasts of her many buyers and prospective buyers, the surrounding country and towns are well represented and every incoming train adds its quota to the already large list of outsiders. Not a few of the latter hail from rural districts where they have heard of the conquests of the small car and have come themselves to see and if possible be convinced. Should the sales made during the week not total up as anticipated the dealers of Denver will have at least on their books the names and addresses of many who are interested in the motor car and who during the remainder of the season or next year will be added to the motorists' ranks.

In all, twenty-two different makes of cars are exhibited, most of them in the booths of the local agents, but a few by the manufacturers themselves. The booths in general resemble those seen at other local shows, some of them unostentatious in the extreme but others with a show of decorations that would compare favorably with those seen in an eastern exhibition. Two local concerns display the season's styles in motoring clothing, most of the big tire houses are showing their goods and local automobile supply houses have elaborately-decorated stands in which can be seen the standard automobile supplies. There is only one automobile manufacturer in Denver, but his exhibit is a center of attraction and a matter of local pride.

The following is a list of those exhibiting and the lines shown:

Consolidated Supply Co., complete line of automobile accessories.

Flint-Lomax Electric & Mfg. Co., Flint-Lomax car.

Olds Motor Works, Detroit, Mich., Oldsmobiles.

Automobile Livery & Repair Co., Wayne and Stephan. batteries and spark coils.

A. T. Wilson, Marion, Cameron and Gale.

Mathewson Automobile Co., Moline, Thomas, Queen and Reo.

Denver Motor Carriage Co., Packard, Elmore and Pope-Tribune.

Colorado Automobile Co., Pope-Toledo, Cadillac and Baker electrics.

Antlers Automobile Co., Ford and White steamers.

George N. Pierce Co., Pierce cars.

E. R. Cumbe, Rambler and Mitchell.

George E. Hannan, Yale and Michigan.

H. G. Greenhill, Northern.

J. Hervey Nichols, Jr., Winton.

Brown & Beck, Orient cars and Apache motor cycles.

Diamond Rubber Co., Diamond tires.

Fawkes Rubber Co., Fawkes tires.

Hartford Rubber Works Co., Dunlop tires.

B. F. Goodrich Co., Goodrich tires.

G & J Tire Co., G & J tires.

Goodyear Tire & Rubber Co., Goodyear tires.

E. T. Weinant, Fisk tires and supplies.

Electric Garage, Exide batteries.

May Co., clothing.

Gane Clothing Co., automobile clothing.

Special attention is deserved by the exhibit of the Consolidated Supply Co., as its exhibit would have been a credit to either of the national shows. Its booth was elaborately decorated in green and red and the display of lamps, horns, tires, mufflers and all kinds of automobile appurtenances was tastefully arranged.

Another exhibit which came in for a big share of comment was that of the Stephan spark coil, which is so constructed that one vibrator does for two, three or four coils, thus tending to give an equal spark in all cylinders. The vibrator is said to be so constructed that it will not stick.

The presence of the tire makers added greatly to the attractiveness of the show. The Hartford Rubber Works Co., under the local management of H. E. Field, had one of the most artistic booths and showed the perfected Dunlop line to great advantage. In addition to the tire makers two of the leading clothing houses of the city, the May Co. and the Gane Clothing Co., had fine exhibits of automobile clothing and fashionable toggery.

The Flint-Lomax Electric & Mfg. Co. has ventured into the automobile business and has built what promises to be a practical car of the light touring class, with a side entrance, detachable tonneau, pressed steel frame with channels 4 inches deep at the center and 2½ at the ends, no sub-frame and the engine and transmission supported on cross angle bars. The front elliptic springs are 38 and the rear ones 40 inches long. The front axle is one forging with integral Lemoine type steering knuckles. In the live rear axle a 1½-inch drive shaft is enclosed in the usual housing and revolves on Hess-Bright non-adjustable ball bearings.

Power is generated by a four-cylinder, 14-horsepower vertical motor carried under a front bonnet. The bore and stroke are 3¼ and 4½ inches, respectively. The cylinder walls are of tubing with copper flanges pressed on. Mechanical valves with removable casings are carried in the cylinder head and are 1⅝ inches in diameter. The cams on the cam shaft and the rollers on the bot-



PORTION OF ONE OF THE MOST ELABORATE SUNDRIES DISPLAYS



tom of the plunger rods are of tool steel, case hardened. Aluminum bronze is used in the connecting rods and all crank pin bearings are bronze bushed. The wrist pins are made of tool steel, hardened. Within the hub of the fly wheel the spokes of which are blade-like to serve as a fan, is a multiple disk clutch with cast iron and fiber as the alternate friction surfaces. For ignition current there are three cells of storage battery, the current from which passes through a single coil and is distributed to the cylinders by a rotating commutator. The transmission gear gives three forward speeds and a reverse, with direct drive on the high speed and all speeds obtained through one lever. The gears are made of hardened steel. Drive to the rear axle is through a certain jointed shaft.

On the steering wheel are mounted both throttle and spark advance levers and the clutch may be engaged by either pedal or brake lever. A brake for general use is carried on the drive shaft and on the rear hubs are the usual lever brakes interconnected with the clutch so that the application of the brakes releases the clutch. The gasoline tank has capacity for 12 gallons and is placed under the front seat.

#### WHO WANTS A ROAD?

Boston, Mass., April 15—If any one would like to buy a mountain there is an opportunity now open. The Mount Washington Carriage Road Co. wishes to sell its 8-mile road from the Glen cottage to the top of Mount Washington, which is the road used last summer in the "climb to the clouds." This road was created by a special act of the New Hampshire legislature in the latter part of the fifties, and the charter gives the company the right to cross over and down the Fabyan side of the mountain.

O. H. Smith, 53 State street, Boston, says that the company is desirous of selling the road and suggests that automobile people might buy it and put on a line of automobiles to make a circuit of the mountains. The railroad charges \$10 for a round trip ticket from Jackson or Intervale, up through the Notch and over the mountain, and return by coach to Jackson, but Mr. Smith points out that automobiles can do the trip quicker than the railroad and go all around the mountains. The road is 8 miles long and for carriage roads is in good condition. For automobile purposes it would need some improvements. From a scenic standpoint an automobile trip over the mountains is incomparable.

#### A. A. A. TOUR COMMITTEE

New York, N. Y., April 17—The runs and tours committee of the American Automobile Association has been completed and approved by the directors. Its make-up is: Augustus Post, chairman; C. J. Glidden, Boston; M. M. Belding, New York; A. R. Pardington, Brooklyn; H. W. Smith, Syracuse; W. C. Temple, Pittsburg; Walter White, Cleveland; William Money Penny, Columbus; L. E. Myers, Chicago; Frank Corbett, Los Angeles; Hart D. Newman, New Orleans, and the chairman of the runs and tours committee of the Automobile Club of Philadelphia. Chairman Post is expecting daily a call for a meeting of the Glidden cup commission, by its chairman, President Lee, of the A. A. A., who has been detained in the house by illness.

## BEERTOWN'S TOY SHOW

### Automobile Section in Combined Concert and Local Exposition—An Over-Grown Bazaar

Milwaukee, Wis., April 18—What we Milwaukeeans hope will be the nucleus of a real show in the season of 1905-06 is the automobile section of the Merchants' and Manufacturers' Exposition, which opened in the Exposition Building Saturday night. We have here and will have for the next 37 days—or something like that unless the exhibitors get tired and go home—a miniature automobile show. Of course, it isn't the real thing. Nobody claims that it is, not even the few people who are exhibiting, though, to give them due credit, they are doing the best they can



AN IGNITION EXHIBITOR AT DENVER

under the circumstances. It is a sort of plaything of a show, but even at that they may serve a good purpose.

Like the toy automobile which awakens in the 10-year-old a desire to go up against the real game when he is old enough to have his mitts on the steering wheel, the toy show which is at the Exposition this month, the leaders hope, will create an appetite in Milwaukee for a big exhibition next season.

The Merchants' and Manufacturers' Exposition is a proposition backed by private enterprise, half of the affair being a band concert by Ellery's band and the remaining half a sort of bazaar. It is one of those things where it costs something like 50 cents to get in and \$10 or \$15 to get out, unless the visitor gets into the automobile section and gets too deeply interested in one of the cars displayed, in which case it may cost him as high as \$2,500 or more. But because the chances are more in the visitor's favor if he goes to the automobile end of the building that display room promises to be a sort of haven for those who have a desire to retain possession of the contents of their purses.

The automobile section was like a circus just going up on the opening night. Only two exhibits were complete, and but two others were partially complete, though it was stated that every space in this section had been sold. Manager Hibbard of the Electric Vehicle & Supply Co., which had an exhibit

of Studebaker, Columbia and Buffalo electrics in this department, was the busiest man there. His exhibit was complete in every detail and was thoroughly up-to-date. Indeed, if a man half closed his eyes so as to see no further than the boundaries of Mr. Hibbard's space, he might imagine for a moment that he was in a corner of the Chicago show. The floor was neatly carpeted; there was a neat sign above the exhibit, a desk well loaded with circulars, a couple of chairs and a railing around the whole thing. With a few palms or something similar, the exhibit would have been as complete as any in regulation shows.

The Hein & Casper Automobile Co. also had its exhibit in shape on the opening night, showing White and Elmore cars, for which it is agent. Its section was well prepared, though not quite so much trouble had been taken in decoration. The Milwaukee Auto Engine & Supply Co. was also doing business. This company acts as distributor for the Wayne. Signs showed that the E. W. Arbogast Motor Co. was going to occupy another corner and spaces were partially prepared for other displays.

In the main room of the building were two exhibits of contingent businesses, one of the Badger Gas & Gasoline Engine Co. and the other of the Keelyn Electric Co.

"I would not be surprised," said Manager Hibbard of the Electric Vehicle & Supply Co., "if sufficient interest was awakened during this exposition to warrant a real show during the next season. I am in favor of a show and hope one will be given."

#### GERMANY LEADS IN DENMARK

Copenhagen, Denmark, April 5—Tivoli hall is given over to automobiles, motor cycles, motor boats and bicycles this week, the occasion being the annual automobile show promoted by the Union of Motor Industries, the Board of Trade of Cycle Manufacturers and Merchants, and the Association of Manufacturers. Prince Christian of Denmark, the minister of public works, the chief of police, and many other prominent men attended the opening of the show.

For the first time it is noticeable that French cars are not in the majority among the imported machines. Germany is the leader, being well represented by various models of Cudell, Durkopff, Adler, Benz, Stoewer, and Bergman cars and also by a large display of motor cycles. De Dion-Bouton and Berliet cars and Peugeot motor cycles represent the French industry, while a few motor cycles made in England and Austria represent the products of these countries.

Although Denmark is not considered to be a motor car producing country, the samples shown by the Dansk Automobil Fabrik seem to please the Dane as they are of moderate price and seem to be simple in construction.

#### PIKE'S PEAK IN SEPTEMBER

Denver, Col., April 15—The Pike's peak climbing competition will probably be held September 21, according to the announcement of Manager G. A. Wahlgreen. At any rate the event will be held between September 18 and 23. There is also to be a track race meet at Overland park, before the hill climb, while a road race from Denver to Colorado Springs is being planned. No efforts will be spared to make all these events interesting and worth while for eastern automobilists.



**MOTOR AGE** has moved its publication offices from 1303 Michigan avenue, Chicago, to 309 Michigan avenue, Chicago. All communications should be addressed to the latter location. The New York office of **MOTOR AGE** has also been moved, now being at 29 West Forty-second street, New York.

### NEEDED EDUCATION



**ASSUMING** that the commercial end of the motor car industry is to exceed in size and versatility the pleasure and that its development rests not only upon the production of the best business vehicles that the numerous factories can build, but also on the proper handling and keeping in repair of these machines, it is essential that competent operators be secured for driving these machines.

A railroad locomotive placed in the hands of an incompetent rushes to certain destruction, as does the ocean liner or any other mechanically constructed device when intrusted to the novice. Our factories may build fine vehicles, replete with evidences of modern engineering skill and capable of performing work heretofore considered impossible in the transportation field, but if we have not skilled drivers for these—men who are educated not only in the construction and operation of the gasoline engine, but also with a practical knowledge of electricity, elementary physics, mechanical mathematics, including arithmetic, geometry and algebra and the elements of designing—the machines become not only objects of ridicule but dangerous engines, capable not only of self destruction, but a menace to other vehicles.

With the commercial man automobiles lose all attributes such as attractiveness of design, speed propensities and promenade features, being by him considered as "a-dollar-and-cents" proposition. He asks for a week or 2 weeks of demonstration, for the time laying off two or three of his horse wagons, and in his business-like way calculates loads carried, distance traveled, speeds made, gasoline consumed, oil consumed, electric current needed, operator's pay, storage rates and general wear and tear expenses. If these, when totaled, are materially less than his present expense for having the work performed by horses, and if the initial outlay is not too excessive, he invests in a commercial machine and turns it over to a driver whose knowledge of the car is the outcome of what he has observed by accompanying the demonstrator during the 2 weeks.

Then commences a continuous vaudeville of education, which has, in many cases, led to the shelving of the motor wagon and the return to horse labor.

There is a remedy. The car builders are doing their part and it is now up to the drivers to do theirs. But the drivers themselves are helpless if not aided. You cannot take a man from a horse wagon and by explaining a few lever and pedal movements make a motor car driver out of him, any more than you can take that same driver and place him at the throttle of a steam locomotive. Education is needed.

The general trend of the necessity of this learning is evidenced by the numerous Y. M. C. A. schools that have sprung up throughout the country, as well as the many schools carried on as private enterprises. But the work done in these is not enough. Manual training schools are needed which may serve as adjuncts to many of our larger technical schools, and in which a 2 or 3-year course is provided, covering the common branches of practical mechanical knowledge as well as special training, the graduates from which will be intelligent, careful operators and not red-hot chauffeurs whose chief qualification is the ability to take corners at a 20-mile pace.

We need these schools as much as we need engineering institutes for the production of railroad engineers, and until we have such the working of the commercial vehicle will be enormously hampered. The instruction offered must be practical and include a general technical education, good operating experience, supplemented by particularly thorough knowledge of the gas engine.

### ANIMOSITY FUTILE



**IF ANY ONE** thinks that the supposedly antagonistic attitude of the farmer toward the automobile and the automobilist is but a humorous element in the affairs of the times—a sort of transitory joke—he should read closely the country newspapers, and he will find that there is, throughout the land, a deep-rooted objection to the use of the country highways by automobilists, and that, strange as it may seem, the wonderful progress of the automobile within the last 2 or 3 years has not brought about any mitigation of the bigoted antagonism of the ruralites. Here is an open letter in the Union, of Marshalltown, Ia., which is a fair example of the lack of appreciation of modern progress as exemplified by the motor car:

When a person is brought in personal contact with a public evil its enormity is more keenly felt than when not personally affected by it. I found this out by personal experience when I met an automobile last Wednesday afternoon, containing three males and one female. I can't call them men and woman.

I came out of the meeting with a broken buggy

shaft, demoralized harness and a badly frightened horse. Of course these creatures insisted they were within the law, and what recourse had I with no one to vouch for my side of the case.

This auto business is getting to be a serious one on our country roads and single travelers will be compelled to do something for self-protection against these auto tourists that regard neither law, life nor property.

That my life was placed in jeopardy goes without question, as it is not a safe place to be seated in a buggy behind a madly plunging horse, frantic with fear and trying its best to get away, and I feel that I would be justified in protecting myself against lawless auto parties the same as against any ordinary highwayman.

The country people are getting aroused on this question, too, and something must and will be done to abate the nuisance.—M. V. FOOTE.

These narrow-minded kickers of the provinces are partly right, and their objections cannot be laughed at and scorned. Right of way by force may be justifiable in the case of monopolies who seek to plow an undisturbed way through the commercial affairs of the land, but it is not justifiable in the actual use by the people of the people's mud, sand, gravel and macadam roads.

Modern traffic of necessity means an increase in speed and danger—danger so long as the modern means of locomotion must meet on the highways the older and incompatible forms. Automobilists who have at heart the welfare of automobiling for pleasure and of the automobile industry as related to utility and commerce, should recognize the fact that the means of travel which we think antiquated are dear to a large percentage of people and must be persuaded, not driven, into obscurity.

The best way on earth to drive the horse off of the highways, and thus make the highways safe for travelers because used only by the one class of vehicle, is to create a feeling of friendliness toward automobilists, whereby those who now are prejudiced will come to realize the eminent utility of the motor car and to gradually recognize its superiority over all other mediums of road traffic.

Because an automobile is big enough, strong enough and fast enough to run any other vehicle it meets into the ditch is no reason the man who drives it should take advantage of his prowess to create an enmity which tends to postpone the universal adoption of the motor as a successor to the horse. So long as the farmer feels that an injustice is being done him, so long will he stick out for regulations which do the automobile an injustice, but as soon as he learns that the automobile is not only a superior means of travel, but the safest means when in the hands of a competent driver, he will have a greater desire to possess an automobile than to protect conveyances by horse against the encroachment of the modern system.

To call farmers enemies and to fight them by forceful methods is the same as applying prize fighting methods to the education of school children. As the correspondent quoted above states, people judge public institutions by their own relation to them.

Every farmer in the land must be taught individually that automobilists are gentlemen, that they handle their cars carefully and intelligently, and that cars so handled on the road are the safest conveyances in existence, the horse-drawn conveyance being the dangerous factor.

There is only one way to do this, and that is for all automobilists to act the part. They are not doing it now.



# Jump Sparks



NEWS ITEM—MEMBERS OF VARIOUS AUTOMOBILE CLUBS ARE BEING APPOINTED SPECIAL POLICEMEN TO RUN DOWN FELLOW AUTOMOBILISTS WHO BREAK THE SPEED LAW

A speedway scheme a week is the schedule.

The woods are chock full of 50-second cars—now.

The public still holds its breath over that New York show proposition.

It is now up to the A. L. A. M. to take a fall out of the railway locomotive trust.

A second Ormond has been discovered on Lake Superior. Senator Morgan is expected west any moment.

The sinking of Panhard-Levassor during the Monaco motor boat race meet will probably cause the promoters of that trans-Atlantic motor boat race to hesitate.

Action taken by members of the Automobile Club of America in the matter will cause chauffeurs to think twice before they borrow their employers' cars without permission. Prosecution for grand larceny is expensive rental for an automobile.

The Chicago Journal says: "Chicago automobilists are going to follow the lead of their New York brothers and have arranged an infants' day." Does the Journal mean to insinuate that the automobilists are going to give their "babies" a ride?

Last Sunday the police of Evanston, Ill., pinched a lot of Chicago automobilists for breaking the 8-mile speed ordinance. There was not a Chicago Automobile Club member in the bunch. The club members are not certain whether this is a compliment to their law abiding spirit or to the cars they drive.

It's really unkind of the other organizations to keep the A. L. A. M. on Uneasy street so long over the New York show matter.

## THE WEEK

Pennsylvania automobile bill passed.

A. A. A. tours committee approved by directors.

Pike's Peak climb announced for September 21. Colorado Automobile Club to hold hill climb on April 26.

Denver's first automobile show enjoys a most successful run.

Germany leads France in exhibition of motor cars at show in Copenhagen, Denmark.

Monaco power boat meet filled with exciting incidents, but little record cutting done.

Offered for sale—road leading to top of Mount Washington. Buyer is given an option on the mountain.

Racing board of A. A. A. accepts French entry of cars for Vanderbilt cup race, in spite of technicality in rules.

Milwaukee motorists have a toy automobile show in connection with Merchants' and Manufacturers' Exposition.

Motor cyclist in French race covers 51 miles in an hour and wins 100-kilometer race—62.2 miles—in 1:14:37.

Ten-horsepower Argyll car—a British production—declared winner in final test in first great Australian endurance test.

Barney Oldfield clips 9 4-5 seconds off 5-mile record on half-mile track at Joplin, Mo., covering distance in 6:30 4-5.

Chicago Automobile Club secures many fast racing machines for 3-day meet at Washington park, May 27, 29 and 30.

A. C. A. formally requests members not to pay fines of chauffeurs arrested for speeding, when using car in absence of owner.

Panhard-Levassor, 240-horsepower motor boat, wins 125-mile sea cup race at Monaco, and sinks in handicap race on following day.

Berliet racer wins Camp hill climb in France, covering 1 4-5 miles, with 10 per cent grade, in 4:07, classification by cylinder capacity.

Milwaukee has come to the front with an automobile bazaar.

The state laws being almost all finished we will now settle down quietly to breaking them.

Imitation being the sincerest form of flattery, MOTOR AGE extends its heartfelt thanks to the Automobile Review.

Anyway, Panhard-Levassor scored another victory over Mercedes before she gurgled her dying gurgle and sank into the bay of Monaco.

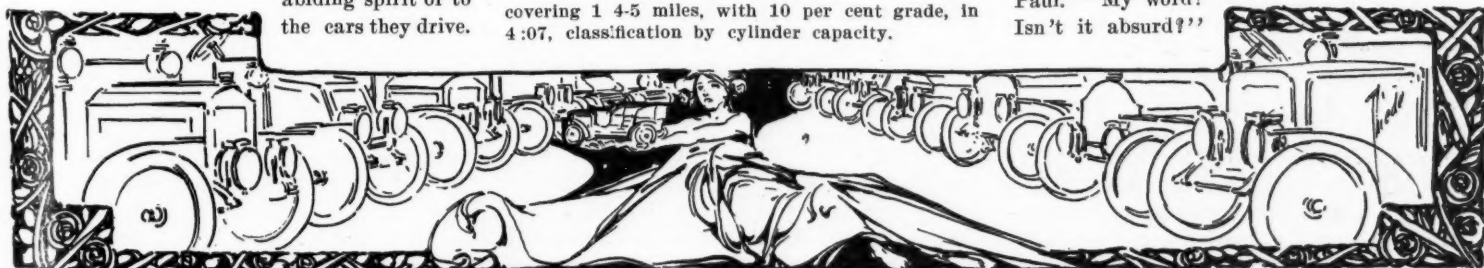
Taxation of automobiles by horsepower would certainly have a desirable effect upon the degree of truthfulness of the community of automobilists.

The 8-mile road up Mount Washington is for sale. After having witnessed the way automobilists drove up it last summer the horse-men probably thought it was no use.

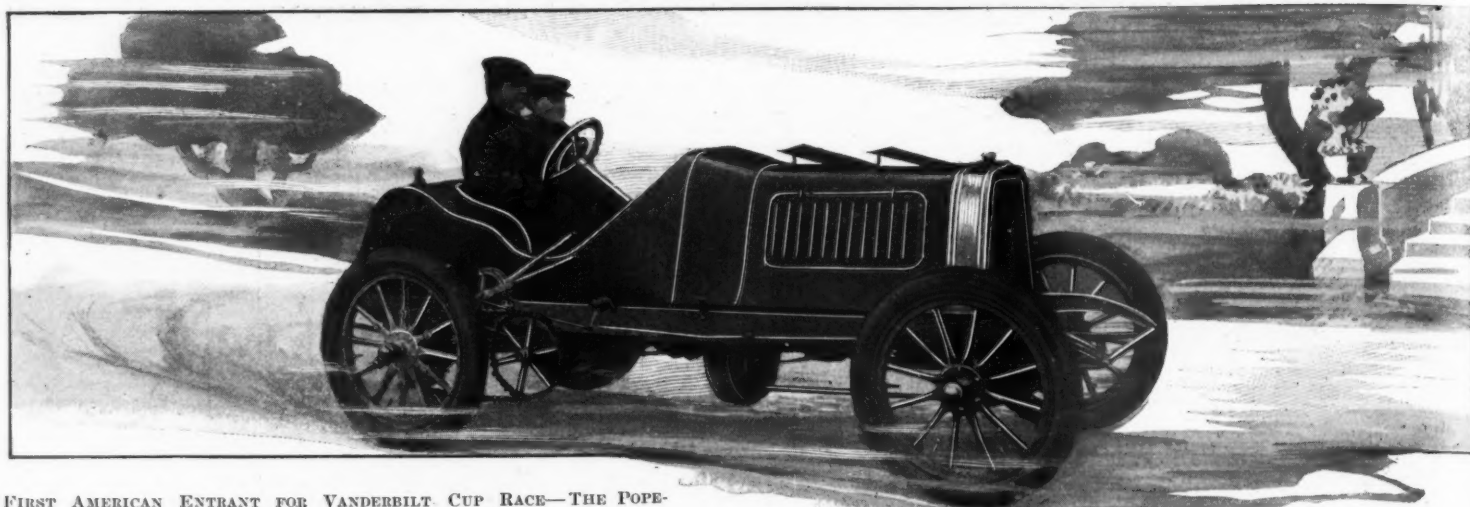
Cincinnati expects to promote a series of "gentlemen's matinees." Again arises the question: Does the word gentlemen refer to the performers or the spectators?

Now that the gasoline motor is encroaching upon the field of the steam locomotive some railway company should vindicate itself by contracting with the White Sewing Machine Co. for a steam railway motor car.

Anyway, the American Automobile Association is the "Great White Father" and a dispenser of all good things in the eyes of some people. This week some of the officers of the Chicago Automobile Club telegraphed the A. A. A. for a sanction for a club run to St. Paul. "My word! Isn't it absurd?"



## TREND OF THE RACING GAME



FIRST AMERICAN ENTRANT FOR VANDERBILT CUP RACE—THE POPE-TOLEDO WITH H. H. LYTLE AT THE WHEEL

New York, N. Y., April 17—A technicality is not to be allowed to stand in the way of the acceptance of the entry of the French team for the Vanderbilt cup race. This was decided at a conference of leading members of the commission at Garden City yesterday, at which Chairman Morrell and former Chairman Pardington of the racing board of the A. A. A. were present.

Chairman Morrell had received from the Automobile Club of France a communication endorsing a draft for \$2,500 for the entry of five cars constituting the French team. No car nor driver was mentioned, as called for by the deed of gift, the French club having decided to choose as its team the five leading cars in the June 15 elimination trials for the French team in the Bennett cup race.

Under the circumstances the commission took a commonsense, sportsmanlike and equitable view of the situation. The entries for the Vanderbilt race close on May 15. It was impossible for the French club to secure government permission for more than one set of elimination trials and so they were combined for the two cup contests.

The emergency required immediate action so Chairman Morrell went further than merely to accept the entry of the French team by declaring that it should apply also to other foreign clubs. They, therefore, can make their entries on or before May 15, but must name the entrants and cars within a reasonable time, say July 1. This ruling, however, will have to be confirmed by the commission. It is safe to say that it will be affirmed.

It seems probable that the deed of gift will be amended to cover similar conditions. It is possible that they may arise in the selection of the British team through competition between the Napier and Wolseley adherents. The German club is reported to have given the Daimler people authority to pick its team. Italy having but one candidate car, the Fiat, the automobile club of Turin has given the choosing of its team to Hollander and Tangeman. Belgium might likewise delegate similar authority to Joseph S. Heller, the importer of the Pipe, should he make application.

A second American entry has been made for the Vanderbilt race. Again Colonel Albert A. Pope is the entrant with another Pope-Toledo. This time the nomination is made by the Automobile Club of America, Colonel

Pope's first entry having been made by the Hartford Automobile Club. Both of the candidate's cars will be of the four-cylinder type. It is said that one will be of heavier build and higher power than the other, and an out-and-out racer. This is the one picked for H. H. Lytle to drive. It might not be a bad guess that the other will be practically an ordinary touring car, of the type which was beaten only by the two French high-powered flyers in the first Vanderbilt contest.

A prominent racing official, who had something to do with the framing of the new amateur rule, in discussing it with a MOTOR AGE man, said: "Critics of the new rule, who have scented in it discrimination against the trade, are a bit wrong in their conclusions. Such trade leaders as Windsor T. White, A. L. Riker and E. T. Birdsall had a share in its framing. They discussed it thoroughly from the standpoint of its effect on the trade and came to the conclusion that it would be a benefit rather than an injury. Owners asked for a class to be established, which would permit them to have racers among themselves, without makers and dealers butting in with specially made cars and expert factory drivers. For dealers seeking to sell the growing class of racing enthusiasts cars of high speed reputation and then put against them the factory's fastest product, piloted by experts, would not only be killing the goose that lays the golden eggs, but also be a bit unfair to their customers. In the end the buying of fast cars for amateur racing would be discouraged and this growing contingent of purchasers cut off. Besides the public would soon get wise to the fact that specially built factory cars, driven by experts, and not the stock article, piloted by bona fide owners, were winning the prizes, and amateur racing would become a joke and quickly come to an end. Valuable advertising from victories of cars on the merit of the stock cars themselves would be lost."

At a conference of the managers of the Morris Park, Brighton Beach and Empire City tracks held last week an amicable division of dates was agreed to whereby racing will be insured practically every Saturday to New Yorkers. Morris Park gets the greater number, owing to the fact that horses demand the other two courses some of the time. Alfred Reeves, by the way, is not to retire altogether from connection with the automobile meets at the Empire City track, having agreed

to act in an advisory capacity to Frank J. Mackain, who will be the manager and look after the details.

Although Henry Ford is to race his Ormond flyer at the Washington Park meet, Chicago, it is stated, on the authority of E. B. Jackson, manager of John Wanamaker's automobile department, that the car in question is to be reserved mainly for road racing events and presumably the Vanderbilt cup contest. Mr. Jackson told the writer that Mr. Ford has in mind the building of a middle-weight car designed especially for track racing and that Frank Kulick would campaign on the circuit with the car. It looks as though there would be lively competition in the middle-weight class the coming season among Ford's flyers, the Gray Wolf, Colonel Green's Franklins, Major Miller's record-holding Renault and a new aspirant for track honors.

The new candidate for racing fame referred to is to be the creation of R. E. Olds and will be known as the Reo Bird. Mr. Olds writes Secretary Reeves that he expects to have it completed in time to make its debut at the opening of Morris Park on May 20. This will be by no means the first effort of the veteran designer at racing car building. His Olds' Pirate made world's straightaway records for a car under 1,000 pounds at Ormond in March, 1903, where it scored 1:06½ for the mile and 42 seconds for the kilometer, which was lightning fast going for the cars of that day.

Joe Tracy will drive Dr. Harold E. Thomas' Locomobile in the Bennett race. He is already at the Bridgeport factory, where he and Mr. Riker are attending to the final setting up of the car. It will be completed in a few days and will be given a thorough tuning up on the road before being submitted to the A. C. A. racing committee on May 1 for test and approval in accordance with its rules.

It is said that the Thomas Locomobile, which is rated nominally at 90 horsepower, is expected to develop 120 horsepower, and its cost will be in the neighborhood of \$15,000. The car was designed by A. L. Riker, technical adviser to the racing board of the American Automobile Association. The engine is of four cylinders. The wheel base is 109 inches and the tread is 54 inches.

In construction the car is reputed to be similar to the large touring cars of the same make, but there is no muffler. The brakes are un-



usually powerful, the sprockets and chains are very heavy, but the flywheel is lighter, weighing but 80 pounds. The wheels, which have steel rims and wooden spokes, have a diameter of 34 inches. The total weight will be slightly under 2,200 pounds. It is said that Tracy will take it to Florida to test on the Ormond beach as soon as it is ready for him.

Senator Morgan took down a party last week to view the site of the Barnegat race course. They found the site to be an ideal one, situated in a pine forest on a high plateau above the sea. The course is a triangular one of 5 miles, giving three splendid stretches. Each turn will have a radius of 2,000 feet.

Barney Oldfield writes Secretary Reeves that he would like to have a match race at the opening of the Morris Park track on May 20 with any driver who cares to dispute his title of American track champion. Although Oldfield unquestionably redeemed himself after his defeat by Bernin and Sartori at Brighton Beach last fall by his famous victory in the four-cornered contest at Empire City track, he wants another race before the New York public. Oldfield still pins his faith to the Peerless Green Dragon which he used last season and which he piloted when he created all the track records from 1 to 50 miles. Oldfield says he prefers the distance to be from 5 to 10 miles. He writes that he will probably race at St. Louis or Chicago on Decoration day and will then come east if a match is arranged for at Morris Park.

Applications for membership in the Morris Park Motor Racing Club are pouring in on Secretary Reeves. The annual dues have been set at \$25. Members only can use the track for practice. A limit of 250 has been set, which is being rapidly approached. George Isham Scott and Major C. J. S. Miller have been added to the board of governors.

W. K. Vanderbilt, Jr., on his arrival from Paris last week at once ordered the 90-horsepower Mercedes he drove at Ormond put in order for use. E. R. Thomas' car of the same make and power, which was badly injured in Cuba, has been repaired and given over to its owner. In view of the present boom for amateur track racing and the likelihood that the remodeling of Morris Park will insure high speed and perfect safety conditions it is possible that the two millionaire racing enthusiasts may not be able to resist the temptation to match their time cars in a friendly duel.

## MANY RACERS IN SIGHT

### Chicago Automobile Club Assured of Keen Competition at 3-Day Meet at Washington Park

Chicago, Ill., April 19—That there will be no scarcity of fast cars to provide close competition at the 3-day race meet of the Chicago Automobile Club at Washington Park, May 27, 29 and 30, is assured by the entries already promised and those virtually secured. Carl Fisher of Indianapolis will be on hand with the remodeled eight-cylinder Premier Comet and a new six-cylinder Comet. Henry Ford will enter the six-cylinder Ford racer, which was built for the Ormond tournament last winter, but which was unfortunately prevented from making its debut by the breaking of the motor crank shaft.

Colonel E. H. R. Green, of Terrell, Tex., has written the Chicago Automobile Club that he will be more than delighted to be on hand with his stable of light racers, including two Franklins and the Packard Gray Wolf. T. L. Tincher of Chicago will enter his 80-horsepower Tincher, which gives promise of exceptional speed. C. A. Coey, Chicago agent for the Thomas, has secured, to place on the track racing circuit this year, a six-cylinder Thomas racer now nearing completion, and which will be sent after Barney Oldfield's scalp with Dan Canary as pilot. In track work and almost any old nerve necessitating stunt Dan is virtually the limit, and the combination should prove a dangerous one. There is also the probability that Webb Jay with a White steam racer, the new Reo Bird, and the new Marion racer will be present, and an effort is being made to secure the appearance of Eddie Bald with the Columbia racer, and of Barney Oldfield with the Peerless Green Dragon. R. W. Harroun, of Chicago, is building an extremely light 20-horsepower track machine which he thinks should clean up races in its class.

#### EUROPEAN TESTS

Paris, France, April 5—A hill climbing competition of rather unusual interest was held last Sunday near Marseilles, on the Camp hill. The distance over which time was taken was 1½ miles, with an average grade of 10 per cent. The surface was smooth.

Twenty-nine cars and two motor cycles

started. In the first class the only starter was a Richard-Brasier, which climbed the hill in 9:16½. In the second class, for vehicles having a cylinder capacity of not more than 4.701 pints, de Dion-Boutons won first and second, with a Richard-Brasier third. The winner's time was 7:01½. In the third class, for cars with a capacity of not over 6.339 pints, the winner was a Richard-Brasier, a Gladiator taking second honors, followed by another Richard-Brasier and then a Decauville. The largest number of starters was in the fourth class, for cars having a cylinder capacity of not more than 9.508 pints. A Berliet climbed the hill in 4:23½, while a Rochet-Schneider was 22 seconds slower. The other starters were two Richard-Brasier cars, three Turcat-Merys, one Panhard and one Rochet-Schneider.

The Turcat-Mery almost made a clean sweep in the fifth class, for cars of a cylinder capacity of not more than 13.206 pints. First, second and third places were won by this make, while the next three places were taken by Pilain cars. The winning vehicle went up the hill in 4:25½. The fastest time of the day was made by a Berliet car in the competition for cars having a greater cylinder capacity than 13.206 pints. Fabre drove it up the hill in 4:07, a Clement-Bayard being second. A Gardner-Serpollet steamer went up in 4:42½, while a Buchet motor cycle won the prize in its class in 4:42; the Griffon requiring 1 minute 15 seconds more.

It has been decided by the Austrian Automobile Club that the intended reliability trials for touring cars from Vienna to Berlin would be run instead to Breslau. The start from the Austrian capital will be May 17, and the run to Breslau will occupy 2 days. On the third day the cars will be placed on exhibition and the next 2 days the return trip will be made.

There will be four classes of cars: One-cylinder cars carrying two passengers; two-cylinder cars carrying three passengers; cars up to 24 horsepower motors and of more than two cylinders carrying four passengers and cars of more than 24 horsepower and of more than two cylinders and carrying four passengers.

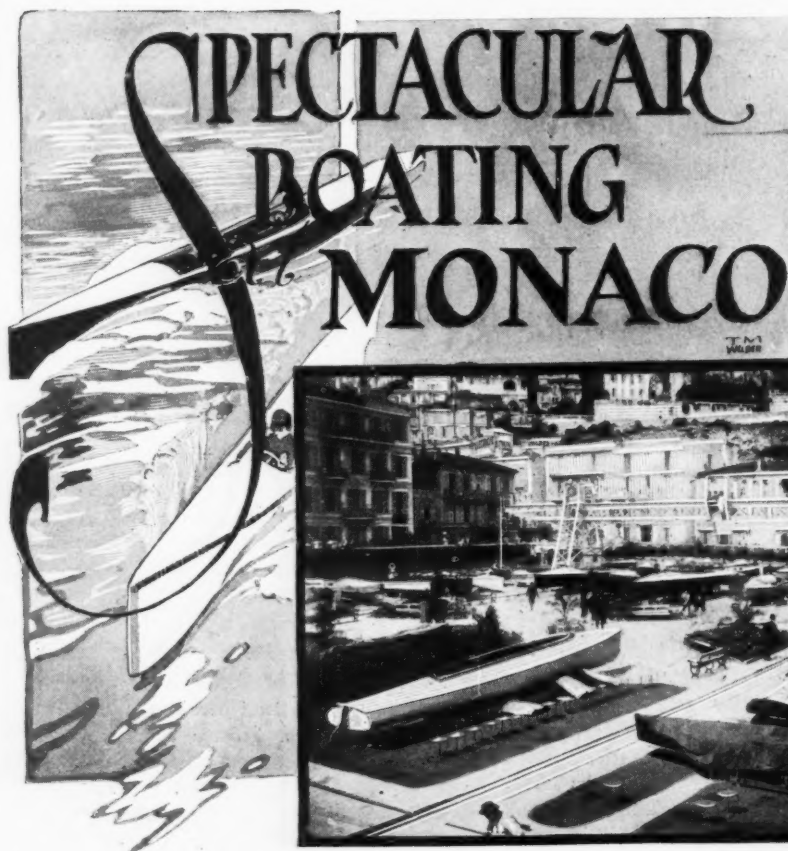
The awards will be by points covering the regularity of running, average speed, speed for a distance of 1 kilometer with a standing start, speed going up hill, price of the chassis, comfort of the body, condition of tires, condition of the transmission parts, and water and fuel consumption.



SENATOR MORGAN'S PARTY AT BARNEGAT BAY



THE ROAD LEADING TO BARNEGAT BAY



THE MOTOR BOAT EXHIBITION AT MONACO

Monte Carlo, Monaco, April 17—Special cablegram—It cannot be said that the second annual Monaco motor boat meeting has been as interesting as last year's meet so far as actual racing is concerned, but on the other hand there has never been a motor boat meeting where there have been so many spectacular accidents. Almost every day a boat has taken fire or sank or collided with another. As a result the well-known Trefle-a-Quatre, hero of the 1904 meet, is no more, while the new champion of motor boats, Panhard-Levassor which beat twenty competitors last Friday, is now at the bottom of the sea.

The Panhard racer sank during a race, a forward plank suddenly giving way, while in the case of Trefle-a-Quatre, the fuel in the carburetor took fire and the craft was taken over by the police boat and finally abandoned to the mercy of the sea. It seems almost certain that the Panhard case has demonstrated that motor boat building practice is dangerous in its putting immense motors into feather-weight hulls. Some of the experts here hold that the principal matter to be considered in

a craft is the hull, and that if the latter is well built there is little danger of accident, even if a very heavy motor is used. The Panhard motor was of eight cylinders and developed 240 horsepower. There were other craft with even more powerful motors, the Dubonnet, for instance, having a 300-horsepower motor.

As a consequence of the meeting it is likely that the boat builders will start to make a craft with lighter motors. At the same time it is feared that some will try to have the lighter engines develop just as much horsepower and that they will thus again encounter great difficulties in providing safety.

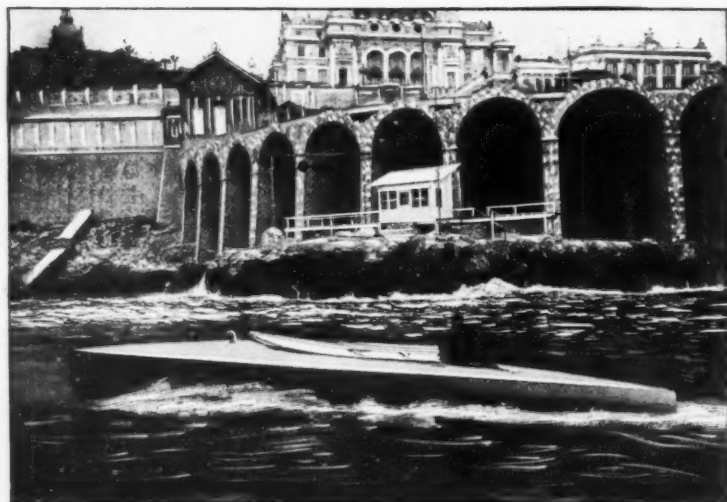
The stormy weather of the first few days of the meeting was succeeded by fine weather on Tuesday, when two races were run. Nine cruisers started in the Monaco-Nice and return race, which was open to boats not over 20 feet long and having a cylinder capacity of not more than 5.282 pints. It was an exciting contest in which Excelsior VII, an outsider, won, followed by a craft which had won a race at last year's meet. In the 100-kilometer

KING LEOPOLD OF BELGIUM—MADAM DU GAST

race for 60-foot racers, the 80-horsepower Palaisoto 1, the 180-horsepower Mercedes-Charley and the 80-horsepower Napier II started. The second boat took the lead at once, and going at the rate of 30 miles an hour soon outran its competitors. It looked impossible for the boat to lose, yet it was suddenly seen to slow. It developed that it had met with trouble to its bearings. This enabled the Napier II to take the lead and win handily from Palaisoto.

The cruisers were prominent on Wednesday's program. Six of them started in the Monaco-Nice-Monaco-Menton-Monaco races, which proved an exceedingly well contested event between Fiat X and Tetu. The Italian craft went at a splendid gait and outdistanced its competitors easily during the first 20 miles, but Tetu gradually gained and was soon only 1 mile behind. Then started a great finish, in which skill of handling probably played a more important part than horsepower. Fiat X passed the judges' boat winner by only 4 minutes, this being the closest finish of the meeting. Two 60-foot racers, the 300-horsepower Dubonnet and the 180-horsepower Pi-Quit IV, started in the 100-kilometer race for 60-foot racers. Both had engine troubles at the start and after considerable loss of time the less-powered craft took the lead, but at the first turn the Dubonnet had overtaken it. After numerous stops, necessitated by engine troubles, Pi-Quit IV won.

Four out of the five craft entered for the 75-mile race for cruisers started in this event on Thursday. It was a runaway affair for Dietrich II, which beat Mercedes-Charley by almost 1 hour, while the other two boats were never in the race. It was during the forenoon



PANHARD-LEVASSOR



FIAT X



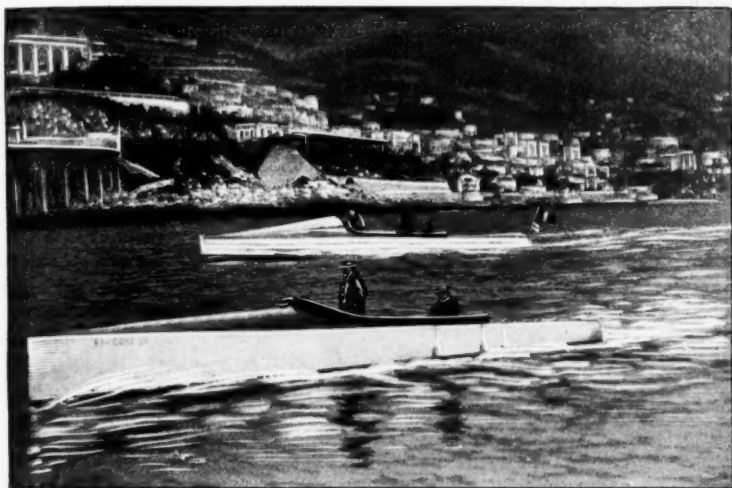
this day that Trefle-a-Quatre met with its fatal accident. Its owner, M. Thubron, and a friend were taking a spin when the fuel in the carbureter ignited. Thubron quickly shut off the fuel tank and then steered to Valleda, a steam yacht not far distant. Assistance was asked and the crew of the yacht made ready to play the hose on the racer when the police boat came along and took it away from its owner. It was towed into the sea and, to the surprise of everyone, it seemed that no effort was made to extinguish the flames. Thubron was outraged and wanted the yacht to go after his boat in order to prevent it from being completely burned. After half an hour had elapsed the police boat towed the wreck to the shore. Some of the policemen were seen using hatchets breaking up the hull. It is likely that Thubron will lodge a complaint for damages.



Saturday. Fine weather prevailed and when the first boat was started in the afternoon one of the largest crowds that had yet attended the races was present. The champion, being the scratch boat, started last and with great ease shot over the calm water like an automobile on a macadam road. Before the boat had been many minutes under way it was suddenly missed and even powerful field glasses could not locate it. Everybody—judges, timers, guests—became excited and the handicap was declared off, guns being fired to announce the

saved. There was no police boat nor any other craft in the vicinity at the time. Great disappointment followed the accident.

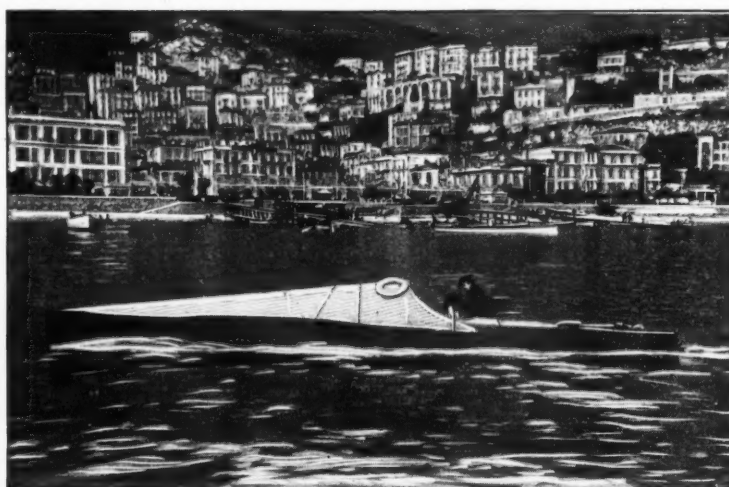
The mile standing start and the kilometer flying start races, the winner to receive the \$1,000 trophy offered by the Prince of Monaco, were the events scheduled for Sunday. Many boats started but everybody seemed to feel the absence of the short-lived champion. The boats which were generally thought to be the fastest turned out complete failures in this short distance championship, and soon all but three craft had been eliminated, these three aspirants to the trophy being the 32-foot Rapiere, the 40-foot C. G. & V., and the 60-foot Dubonnet, of respectively 80, 12 and 300 horsepower. The little Rapiere was favorite, owing to its fine race in the long distance championship. In the mile event it made as good time as Dubon-



PI-QUIT IV  
DIETRICH II



MERCEDES-CHARLEY  
NAPIER II



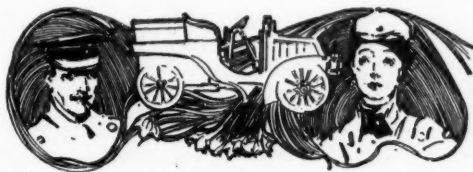
The principal long distance race of the entire week of water sport was the championship race, open to all racers and cruisers up to 60 feet, the winner to receive, among other prizes, \$2,000 in cash. It was a clean sweep for Panhard-Levassor, which won the 200-kilometer—125-mile—race in 4 hours 22 minutes 54 seconds, covering 100 miles in 3 hours 43 minutes 5 seconds, and the first 50 miles in 1 hour 57 minutes 20 seconds. The 32-foot Rapiere racer, also fitted with a Panhard-Levassor motor, was second, having made a grand race for a boat of its size. Among the other starters were boats on which their owners had depended for a decided victory, and on which it was reported much money had been wagered.

After its easy and decisive victory in the championship race Panhard-Levassor was the favorite of the experts as well as of the crowd in the 50-kilometer handicap, which was run

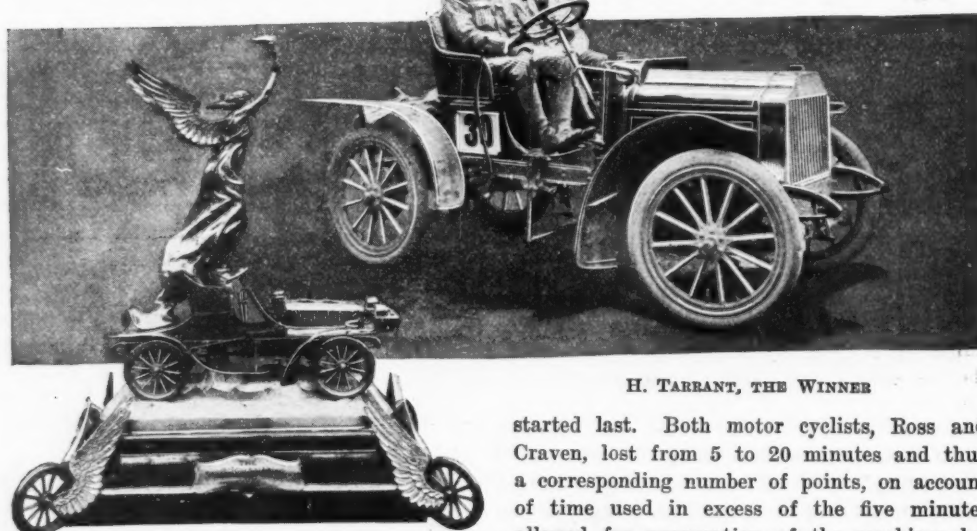
fact to the contestants. After some time signals were received from a mark boat which was lying near the third buoy, announcing that all on board Panhard-Levassor had been saved, though the boat had sunk. When Count de Vogue reached the judges' boat he explained that a plank had suddenly given way while the craft was being driven at top speed, which probably was equal to 30 miles an hour. Within a few seconds the boat had disappeared and it was due to the fact that the mark boat was within a few feet of where the accident happened that the machinists and the count were

net, but in the kilometer flying start the latter was faster. It covered this distance in 1 minute 9 seconds and the mile from a standing start in 2 minutes 30 seconds, and was declared the winner.

Monte Carlo, Monaco, April 18—Special cablegram—The second annual Monaco motor boat meeting is over, the last races having been run today. The only event that promised interest was the 50-kilometer handicap, but in result the event was far from satisfactory. The favorite boats were all beaten and Madriatta finally won. The attendance was the smallest of the meeting, and the opinion prevailed that in order to make the meeting more interesting it ought not to last more than 3 or 4 days at the most. Fewer races and larger prizes are asked for by many motor boat enthusiasts.



# AUSTRALIAN RUN-OVER



THE BUCHANAN CUP

Melbourne, Australia, March 7—Several thousand people assembled yesterday morning on Haymarket square to see the start of the contestants in the Melbourne-Ballarat and return motor car and motor cycle competition which was to decide to whom should be awarded the Buchanan cup, offered by the Dunlop Pneumatic Tire Co. of Australia to the winner of the Sydney-Melbourne endurance run which ended in a tie for first place between six cars and two motor cycles.

The favorite, H. L. Stevens, the American, did not start owing to trouble with his Darracq, and the other starters were all conceded an equal chance, so that the result was doubtful until the official announcement was made that H. Tarrant, driving one of the two 10-horsepower Argyll cars, had lost the smallest number of points and thus won the valuable trophy.

It was a most interesting competition, this test of 140 miles over bad and good roads. It is considered an even more conclusive test than the original 575-mile run from Sydney to Melbourne, for in many respects the contest between the seven starters was more severe so far as the conditions imposed are concerned.

At the finish of the Sydney-Melbourne tour, February 25, the judges decided that the six cars and two motor cycles which had tied for first place on points should be locked up until the day of the deciding competition and that no adjustments or repairs should be made to the machines until 5 minutes before the start of the run-over, when the drivers could make adjustments and ask the official observers to help in this work. The heavy cars were allowed 7 hours 20 minutes to cover the 140 miles; the motor cycles 7 hours and 30 minutes, and the small cars 8 hours 45 minutes. The contestants were compelled to make a nonstop run.

At intervals of 3 minutes the starts of the contestants were made. J. G. Coleman, driving a 7-horsepower Swift small car, was the first to get away, followed by J. H. Craven and S. H. Day, both in 8-horsepower de Dion small cars; the 1½-horsepower Minerva, ridden by B. James, followed; then came the 3½-horsepower Brown, ridden by V. Gard. H. Tarrant on the winning 10-horsepower Argyll was the sixth to start, while W. S. Ross, also at the wheel of a 10-horsepower Argyll,

H. TARRANT, THE WINNER

started last. Both motor cyclists, Ross and Craven, lost from 5 to 20 minutes and thus a corresponding number of points, on account of time used in excess of the five minutes allowed for preparation of the machines before starting.

The roads were not very good during the first 35 miles, yet a fair rate of speed was maintained. Soon after the start Craven had to stop on account of accumulator trouble and lost five points. Without this accident, which caused his only stop during the entire run, the de Dion driver would have tied Tarrant, the winner.

The roads alternated in being smooth, hard, sandy, hilly, muddy and in a few instances dangerous on account of sharp turns. Craven was first to arrive in Ballarat, but his time was 18 minutes slower than that of Tarrant, who covered the course of 70 miles in 3 hours 30 minutes. There was a large crowd in Ballarat awaiting the contestants, and the city officials were among the most conspicuous in their desire to show interest in the event. Three of the starters arrived in Ballarat without having lost a point and this increased the speculations of the followers of the contest as to who would ultimately be the winner. Thus far there had been only one accident. Coleman, the Swift driver, managed to come into contact with a cow and his little car was put out of running order.

On the return trip a few miles from Ballarat one of the motor cyclists who acted as observer for Gard, was thrown some 20 feet owing to the sudden flying off of the driving belt. He had to be taken to Melbourne for medical attendance as he was severely injured. The drivers indulged in fast driving for about 35 miles and then had to slow to an 8 or 10-mile an hour gait in order not to arrive in Melbourne more than 45 minutes ahead of time, and so lose points.

In nearing the finish Day managed to pass Craven and passed the judges' stand 2 minutes ahead of him, having covered the route in 7 hours 57 minutes. Craven's time was 8 hours 2 minutes and as he lost only five points to Day's thirty-eight he was declared winner in the light car class. When Tarrant appeared nearly half an hour after the first two the public generally did not think that he was the winner of the cup, but when it became known that he had made a non-stop run and lost no points, he was given a tremendous ovation. He had covered the 140 miles in 7 hours 5 minutes, at an average of about 20 miles per hour.

The performance of the 1½-horsepower Minerva motor cycle was excellent. It lost only fifteen points and covered the distance of the competition in 7 hours 37 minutes 30 seconds, thus making the second best run of the day and demonstrating that a motor cycle can do good road work when properly handled.

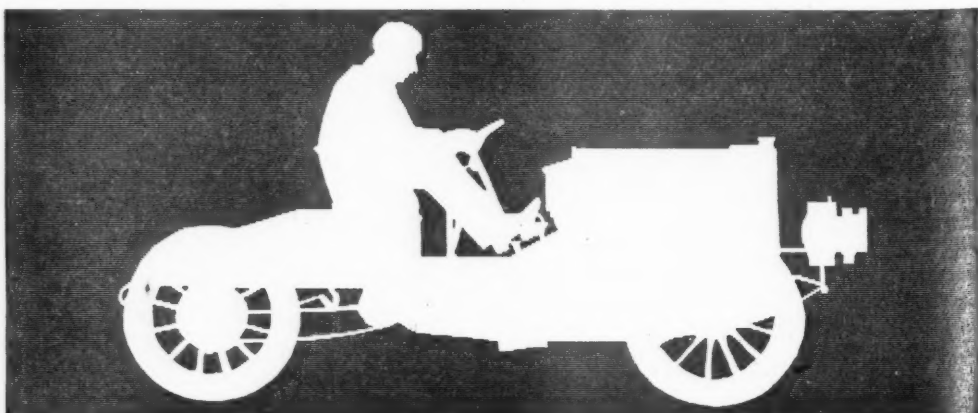
There is evidence, not only in Melbourne but also in Sydney and other important cities in South Australia, that the Sydney-Melbourne and the Melbourne-Ballarat and return motor car reliability trials have aroused a great deal of interest in motoring. Local dealers claim that they have received visits from twice as many prospective buyers as before the events. It is almost certain that another big endurance run will be organized before the end of the season, in which the number of entries will be greatly increased.

## FAST MOTOR CYCLE RACE

Paris, France, April 17—The first important motor cycle race of the year was run yesterday morning and afternoon at the Parc des Princes track, fifteen motor cyclists, representing eight manufacturers, taking part in the 100-kilometer Hydra cup race.

For the second time an Alcyon motor cycle ridden by Anzani won the cup, and at the same time this rider broke several world's records. The 100-kilometers—62.2 miles—was made in 1:14:37, thus breaking the former record by 3:00%. In 1 hour Anzani covered 51 miles.

Owing to the large number of entries it was decided to run two heats, the winner of the fastest heat to be declared the winner of the contest. The starters in the morning race were: Anzani and Bennat on Alcyonmotors; Dancart on a Stimula; Bac on a Magali; Giuppone on a Peugeot; Robert on a Lurquin-Coudert, and Legrand on an Albatros. Giuppone took the lead and soon almost lapped everybody. At the end of 6 miles he was 1 minute ahead of the record. When half of the race was run the Peugeot rider was leading by several laps and was way ahead of





previous records. Suddenly his machine stopped. The spark plug insulation had cracked. Before the machine was repaired Giuppone had lost six laps to Anzani, who was now going even faster than did the former leader. Anzani won easily in 1:14:37, while Giuppone was second 5 minutes behind and Bac third.

In the afternoon race the starters were Cissac and Champoiseau on Peugeot's; Pernette on an Alcyon; Collomb and Thomas on Magalis; Roberts on a Suere, and Ceres on an Albatros. The two Magali drivers went to the front at the start and showed decided superiority over the others during the first half of the race. Then trouble began. Thomas had trouble with his spark plug, while Collomb came in contact with Cissac's rear wheel and fell, putting his machine out of order. Pernette, on the Alcyon, was running as though by schedule and about the end of the race became the leader. He finally won by less than 1 minute from Champoiseau, who was far ahead of the third. Pernette's time was 1:18:45, and in the general classification he was second.

#### TO LICK OBSERVATORY

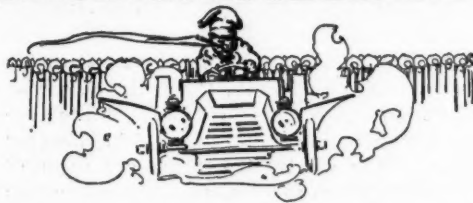
San Francisco, Cal., April 15—An automobile has penetrated into the fastnesses of the Mount Hamilton range in San Jose. P. George Gow, a prominent clubman of this city, accompanied by H. A. French, A. B. Costigan, both of San Francisco, and W. B. Densmore of Detroit, left the city early one day last week for San Jose. Upon arriving at the Garden city they struck out for the Lick observatory, on the top of Mount Hamilton. At the county courthouse they sought a permit to run their machine over the mountain road and were informed that under the law passed by the recent legislature none was needed. The trip was then begun and the run made from San Jose to the observatory, a distance of about 25 miles, in 1 hour and 50 minutes, deducting time for stops. The run was made without an accident.

The same trip is made by the stages, with two changes of horses, in from 6 to 7 hours. Although the stages were passed on the trip by the motorists without difficulty and with no evidence of nervousness on the part of the stage horses, a wild story of a runaway horse and an angry mob chasing the automobilists was published in all of the local daily papers. "Enraged ranchers chase an auto party," was the heading in one of the papers and in the story it says in part: "Chased by a mob of angry mountaineers, intercepted at almost every telephone point by men who endeavored to stop them, P. G. Gow, H. A. French, A. B. Costigan and W. B. Densmore had one of the wildest and most exciting automobile rides down the mountain side from Lick observatory they have ever experienced."

#### HALF-MILE TRACK RACING

Joplin, Mo., April 17—The records for half-mile tracks were broken by Barney Oldfield Saturday afternoon when a large crowd filled the grand stand of the local track to see the well-known driver and his Peerless. Oldfield gave a 5-mile exhibition, covering the first mile in 1:20, 2 miles in 2:35 1-5, 3 miles in 3:54 2-5, 4 miles in 5:12 3-5 and 5 miles in 6:30 4-5, thus clipping off 94.5 seconds from the old 5-mile mark, and also several seconds from the second, third and fourth miles.

## RACING MISCELLANY



**Newspaper Offers Prizes**—There is talk of a spring race meet in Seattle, Wash. The Seattle Post-Intelligencer offers two silver cups as prizes.

**Denver Ascension**—The Colorado Automobile Club, of Denver, Col., will hold a hill climbing contest April 26. The contest will be run on a course starting near Fort Logan and extending to the Loretto academy. The event is arousing much interest.

**Four Countries Besides Italy**—Eight French, one English, one American and two German automobile manufacturers have announced that they will enter one or more cars in the Florio cup race, the most important Italian automobile road race.

**Mayor in Charge**—It has been decided that the annual speed trials at Brighton, England, will be held July 19 to 22. The municipality will spend \$20,000 to put the roads on which the trials will be made in perfect condition. A committee having the mayor at its head has been appointed to look after arrangements.

**An Ormond of the North**—Motorists of Duluth, Minn., claim that the beach along the lake in front of the town is an ideal race course for automobiles. A prominent local dealer who has seen the Ormond beach in Florida thinks there is little difference between the two. The beach at Duluth is from 50 to 60 feet wide, as level as a billiard table and extends about 7 miles along the lake front.

**Thery's First Victory**—Motorists in southern France expect to celebrate the sixth anniversary of the victory of Thery in the Bordeaux-Biarritz road race, which was run October 1, 1899, the distance being about 70 miles. Among the sixteen starters were Voight, Beconnais, Levegh, Rigal, Antony Giraud and Thery, who drove a 3-horsepower Decauville voiturette and won the race in 3 hours 49 minutes 30 seconds, at an average rate of 17½ miles an hour.

**Griffon at the Front**—Horace Camoin, riding a two-cylinder 5-horsepower Griffon motor cycle, won the fifth annual Brugere cup road race, which was run over a course about 130 miles long, in the vicinity of Marseilles, France, March 26. There were fourteen starters, six riding Buchet motor cycles, four Griffons, three Magali machines, and one a Peugeot. The roads were in good condition, but in many sections of the country they were very hilly, with sharp turns and other natural difficulties.

**Belgian Dates**—The schedule for the various contests which will be held during the first fortnight of August, in Belgium, in connection with the world's fair in Liege, has been made by the various committees of the fair and the Automobile Club of Belgium. The circuit des Ardennes will be run August 7, while the small circuit race for voiturettes and motor cycles will be run the previous day. A 1-kilometer straightaway and a hill-climb will take place August 9. There will be motor boat races between Liege and

Seraing, on the river Meuse, August 10 and 12, while a road race for touring cars will be run August 11, the distance being about 80 miles.

**Motor Cycle Race at Rochester**—There will be a motor cycle race Decoration day in Rochester, N. Y. A. M. Zimbrich, 31 South avenue, is in charge of the arrangements for the meet.

**The Algerian Kilometer**—The Sneden cup race, which is annually run over a distance of 1 kilometer, near Algiers, Africa, was won March 26 by Pierre de Malglaive, driving a 45-horsepower de Dietrich racer. His time was 35¾ seconds.

**Cedrino the Boss**—The five Fiat racers which are to represent Italy in the Vanderbilt cup race will be under the charge of Cedrino, a well-known Italian driver who, according to a cablegram received by Hollander & Tangeman, the New York agents for the Fiat, sails for the United States this week. Cedrino will drive one of the cars in the cup race.

**Caldwell Joins Racers**—Frank Caldwell, an old-time bicycle rider who has followed the motor pace game on the board tracks and who has been doing vaudeville in any number of differing sensational stunts in the interim, has turned racing chauffeur and has joined the staff of the Marion Motor Car Co., of Indianapolis. Caldwell expects to drive a lightweight powerful car in racing events during the coming summer.

**Amateur Motorists**—Andy Welch, owner of Charter Oak and Oakley parks, in Hartford, Conn., and Cincinnati, respectively, says chances are good for a Memorial day race meet in Cincinnati. Mr. Welch reports that the Cincinnati Automobile Club is considering leasing one of the two club houses at Oakley track and holding amateur matinee races during the season. The other club house is now leased to the golf club, which has a course laid out in the infield. As many members are interested in both sports there is good chance of the plan being carried through.

**Motor Cycle Hill-Climb**—The board of aldermen of Boston has granted a permit to the Harvard Motor Cycle Club to hold a hill-climbing contest on the Commonwealth avenue course. Three events will be run, the first being for single-cylinder stock machines weighing not more than 110 pounds, and to be fitted with pedals, cranks and pedal chain. Mufflers are to be used without cut-out. The second event is for members of the Harvard University only, and the third is open. Each rider will be permitted several trials and prizes will be offered by the Hendee Mfg. Co., of Springfield, Mass.; C. H. Metz, of Waltham, Mass., and others.

**Boosting the Game**—The entry of Charles Jarrott in the English motor cycle eliminating race has caused much discussion and many people are wondering why he has so suddenly turned his attention to the two wheeler, especially as he seldom rides one and is not personally interested in any concern making them. Jarrott says that his object is only to show that he is a sportsman, has the English industry at heart and lead the manufacturers of motor cycles to show more interest in this event. Jarrott will not ride himself but W. Hidgkinson will be on the saddle of the J. A. P. motor cycle which was entered by the former bicycle champion for the race.

## A MOTORING PARADISE

### Savannah the Most Active Automobile Center of the South— Made so by Good Roads

Savannah, Ga., April 17—Verily if there is a motorists' paradise in this country it is to be found in Savannah, away down south in Georgia where there is only one season of out of doors, and that is all the year 'round. For in Savannah and its vicinity is found everything to make glad the heart of the motor enthusiast—good roads, bright skies and a pleasant country upon which to feast the eyes.

With the first coming of the automobile Savannah people recognized its value and some of the first models of the motor car were soon seen upon the city streets. Today there are over 300 cars—light runabouts, big touring cars, electrics and gasoliners. Almost every leading make is represented except the steamers, which have had but scant recognition.

Through Savannah's shaded streets on any bright afternoon may be seen an almost unbroken line of motor cars. Over half of them have women at the steering wheels, for the ladies have mastered the motor's mechanism and have dropped their carriages for the superior joys of motoring. If there is a man in the seat it is ten to one that the lady next him is handling the car and handling it skillfully too, twisting around the little parks which intersect the streets and dodging among the trucks and wagons of the business district. The speed limit is not always closely observed and the streets are a swarm of bicycles, but even with all this the number of accidents is surprisingly small.

The secret of the automobile's popularity in Savannah lies in the magnificent streets. Miles upon miles of asphalt stretch out in every direction and, at the city limits, extend into roads of Georgia gravel and hard-packed crushed oyster shells, the ideal road for the motorist. The city and the country near it is as level as a floor, with never a slight grade to bring the hill-climbing gear into play.

Of the beauties of Savannah the motor tourists who drive their cars to the city before taking the steamer for the north never tire. The city is one great park, a forest of palms and moss-hung trees. When James Oglethorpe founded Savannah centuries ago he laid it out with broad streets intersecting at right angles and with wide alleys, or lanes as they are called in Savannah, between them. Down the center of the broad avenues he laid out grass plots, surrounded by curbs and occupying half the space in the streets, dividing the carriage way with islands of green. Oglethorpe avenue, named for the pioneer, presents one of the prettiest views in any city, its central row of parks being lined with waving trees whose boughs almost meet the trees along the sidewalks. There are trees everywhere in Savannah and the streets are shaded from early spring until late in the autumn. Under the green canopy is asphalt, hard and smooth and level, with plenty of room and no dense traffic to watch.

Of points of interest near Savannah there are plenty. The Isle of Hope, a delightful little resort with a cheering casino and many country homes, lies several miles from the

city on a road which makes a circuit of 30 miles, an ideal run for a summer evening. Thunderbolt, 5 miles from the city on the river front, is famous for its table d'hôte fish dinners. The golf links, the yacht club with its yachts and launches, old Bonaventure cemetery with its great trees draped in the gray moss of the sub-tropics—these are some of the points which serve as an excuse for a spin out of town. No wonder that every one who can afford it buys a motor car and spends all the time possible in the open air.

Motorists are not persecuted in Savannah. All one must do is to buy a car, have it registered at the city offices, hang initials or a number on the rear axle and be off. There is no license, no tax. There is a speed ordinance which restricts the motor car to 8 miles an hour, but it is not rigidly enforced. On the country roads the limit is just what the car can do, and some of the Savannahians are daily testing their speed capacity.

Dealers are reaping a rich harvest in Savannah this spring. The three garages are daily taking orders for cars of various types and the demand for high grade cars is steadily increasing. It is believed that at least 200 cars will be sold this season.

One of the handsomest garages in the country, certainly the finest in the south, is that of T. A. Bryson, which faces on one of the fashionable streets. It is three stories in height and was built especially for the motor car trade and storage. The building has a 60-foot front, is 90 feet deep and is well equipped. Its windows of plate glass show the main floor crowded with new cars ready for sale and others are on their way. Mr. Bryson is a pioneer in the trade in Savannah and has sold a large number of the cars now running over the streets. His lines are the Franklin, Cadillac and Oldsmobile. The Franklin is having a great sale here, while the light Olds touring car is in excellent favor.

Another concern which has an excellent trade is the Electric Supply Co., which makes a specialty of furnishing cars to tourists at the hotels for little trips over the city. The specialty is the Pope-Waverley electric, though Manager Bailey also handles the Ford, Queen and Maxwell-Briscoe. He has a heavy business in looking after electric machines and in recharging batteries. His plan is a fixed charge per month for storage, light repairs and renewals of batteries.

R. V. Connerat handles several lines of cars and does an extensive garage business. His leaders are the Autocar and Pierce, both of which have made a good impression in Savannah. He also handles the Stevens-Duryea, Northern and Elmore.

For some reason the steamer has never met with favor in Savannah and there should be an opportunity for a live agent to demonstrate its advantages, but there is one point which is of little consequence here and this is hill-climbing. Agents who talk this point waste their breath, for there is not a hill within many miles of Savannah.

#### INVASION BY THE ENGINE TRUST

New York, N. Y., April 19—Special Telegram—The American Locomotive Co., the railway engine trust, has bought ground at Providence, R. I., with 400 ft. frontage, on which a factory for the manufacture of commercial motor trucks will be erected. It is expected that the erection of a suitable plant will be commenced at once.

## FROM THE SOUTHLAND

### Northern Motorist Experiences Delightful Tour Through Valleys and Over the Hills of Dixie

Buffalo, N. Y., April 15—John S. Rowe of Erie, Pa., closed here this week a 2,500-mile trip in a White steam car. The start was made at Savannah, Ga., whence Mr. Rowe drove northward over the route of Sherman's famous march to the sea and then through Tennessee, Kentucky and Ohio. Many side trips were taken, the party, including Mrs. Rowe, two sons and Miss Dorothy Gould, a governess, remaining 2 or 3 days in each of the principal towns on the way.

Two features of the trip were dwelt upon particularly by Mr. Rowe in recounting his experiences. One was that throughout the whole 2,500 miles he had not a single tire puncture. The other was that he found the White an excellent car in which to ford streams. As the party reached northern Georgia they found more and more frequently that the roads were innocent of bridges. When the highway crossed a stream, or, as happened in many cases in the mountain country, where the road and the stream were forced to pass through the same narrow cut, it was often necessary to drive through the water. The tourist claims streams half a mile wide and 2 feet deep were forded without difficulty, the car being run on the steam which had been generated before the flame under the generator was put out.

Many of the streams in the hilly portions of Georgia and Tennessee were by no means dreams, but no serious accidents were encountered and the other users of the highway were extremely courteous. Cracker and negro took in good part any antics which might be cut up by the sleepy mules hitched to decrepit carts. Mostly the carts themselves were so patched up with straps and ropes that the sudden dissolution of the vehicle could hardly be attributed to any one particular thing except age.

One particularly large mule driven by a husky dorky evidently was greatly surprised when the motor car loomed within his range of vision. The mule started to back and backed so rapidly that he kept ahead of the car for some distance.

In all of the larger towns the citizens were unusually hospitable. In the country districts school children oftentimes lined up in front of the schoolhouses to see the car go past and it was evident both from the words and from the actions of more than one of the crackers that they never before had seen an automobile.

In the blue grass country Mr. Rowe found that more care was needed in passing horses. There the delightful farms with their magnificent homes and beautiful grounds were a constant source of delight to the tourists.

Mr. Rowe considers that the tour over the route he took, Augusta, Macon, Atlanta, Rome, Chattanooga, Nashville, Louisville, Lexington, Cincinnati, Dayton, Cleveland, Erie, Buffalo, thoroughly practicable. As for the scenery and the historical interest of the places they visited, including Missionary ridge and Look-out mountain, both Mr. Rowe and his wife were very enthusiastic.



Little trouble was experienced in buying necessary supplies. In some cases, of course, gasoline was high, 25 cents a gallon being the highest price paid, and more than once electric light stations or other industrial establishments were visited in search of lubricant; but in general, said Mr. Rowe, he found it not hard to keep stocked with fuel and oil. Extra parts for the 34 by 4-inch Diamond tires were carried along, but they proved a burden rather than a necessity.

#### TOURING DESIRE GROWS

Buffalo, N. Y., April 17—There is every indication that touring is to be much more popular with Buffalo motorists this year than ever before. Two or three Buffalonians have already announced their intention to drive cars through various portions of Europe during the coming summer, while a large number of long trips in the United States and Canada are being planned.

The prevailing enthusiasm along this line has taken hold of the Automobile Club of Buffalo and members are discussing the advisability of having a club tour to last 4 days or more. The longest run of the club last year was to Rochester and return, taking Saturday and Sunday. That venture was so enjoyed that the motorists think a longer trip under the auspices of the club, and possibly for a touring trophy, would be a success.

While Buffalo is not so well situated as it might be from the view point of one who wishes to make a tour of a few days in near-by territory, Secretary Lewis of the club thinks several excellent routes for a club tour could be picked out. The difficulty of selecting such a route lies in the fact that to the northward and westward Buffalo is hedged in by lakes and the Niagara river, with Canada on the other side of it, while to the southeastward the country is very hilly. This curtailing of touring territory is not a prohibitive drawback to touring, but it creates a tendency on the part of Buffalo drivers to go out and back over the same roads. Those who are advocating the club tour think many drivers of this city should be shown the delights of driving on other roads than those eastward toward Rochester or southwestward toward Erie and Cleveland. The man who takes a long trip out of Buffalo will strike one or other of those roads going or coming but he need not by any means simply travel back and forth over the same familiar routes if he will take a little trouble to study out variations.

One route suggested for this club run is along the lake shore road to Westfield; thence eastward to Jamestown on the first day; north-eastward to Hornellsville on the second day; thence home, or Rochester on the third day and home on the fourth day. Such a trip would provide all sorts of touring conditions. Along the beautiful lake shore road the traveling would be easy. Then there would come hills between Westfield and Mayville, but from the latter point to Jamestown the road for nearly 15 miles skirts Lake Chautauqua in the heart of a delightful agricultural section. From Jamestown to Hornellsville there would be more hills but pretty country also, while from Hornellsville to Rochester should prove a fascinating drive. The run from Rochester to Buffalo with long level stretches would be an ideal ending of the tour. Definite action will soon be taken by the club, in the selection of one or more routes.

## CHAUFFEURS, BEWARE!

### The A. C. A. Is After You for Wilful Speeding and for Driving Cars Without Permission

New York, N. Y., April 17—The A. C. A. is handling the chauffeur question without gloves. Within the past fortnight members have been formally requested by the governors not to pay the fines of their chauffeurs who may be arrested for illegal speeding, when using cars in the absence of their owners.

It was for a member, John J. Hickey, however, to take an even more radical view and action in the matter of abuse of chauffeurs taking out cars without the permission of their owners. Mr. Hickey is the president of the Auto Renting Co. and as such caused the arrest of Patrick Buckley, one of his drivers, for the offense on a charge of grand larceny. Mr. Hickey's theory of the offense was so far sustained that the magistrate held Buckley in \$500 bail for trial at general sessions for grand larceny.

Hr. Hickey reported the matter to the governors and it was at their suggestion that the arrest and charge were made. The governors proceeded to look up Mr. Hickey's prosecution of the offender by instructing its counsel to take up the question. Accordingly Mr. Niles sent the following letter to the district attorney:

I write to you as counsel for the Automobile Club of America to call your attention to the arrest of one Patrick Buckley, charged with larceny of an automobile, the charge being based upon his taking an automobile and operating the same upon the streets without the consent of its owner.

The club is very anxious that this class of malefactor should be punished, as this taking of automobiles by professional chauffeurs is becoming altogether too common, and most of the trouble experienced by the police through the reckless running of automobiles on public streets is the result of this unauthorized running of them without the knowledge or consent of their employers.

It would seem as though this man could be held on a charge of larceny, and in any event that a test case should be made, in order that if the law is deficient as it stands it can be amended so as to cover this sort of act.

Buckley's defense was that the machine he took from the garage had not been in good running order for several days, and, as is usual in such cases, he had taken it out to test and "tune up." It is said to be a common practice with chauffeurs to make the testing of cars an excuse for taking them out without orders.

President Morris has intimated that the governors would ask the members to follow Mr. Hickey's lead and prosecute their chauffeurs in like offenses.

"We all know," he said, "that a large percentage of the accidents caused by automobiles on the streets of New York are the direct result of cars being taken out by irresponsible chauffeurs without the knowledge of their employers. If employers would prosecute drivers who take out cars without permission a difficult problem would be solved."

#### CROSS-COUNTRY SEASON OPENS

Buffalo, N. Y., April 18—The first New York-Chicago automobile road trip of the season is on, having started from the former city Tuesday evening. Three Columbia university senior students are making the trip,

which is the outcome of a dispute, followed by a wager made at a New York theater party, and F. J. Valentine, J. W. Cheron and E. S. Largey are the participants on the trip. Largey owns an automobile in which he has implicit confidence. His two companions agreed with him on the merits of his car, but the remaining students in the party dissented, a dispute arose and the wager followed. According to the wager Largey had to travel by car to Chicago and return to New York by train, completing the round trip in 12 days.

Midnight witnessed the start, and bad roads were encountered, the car being hauled by horses for 20 miles through mud near Albany. They had good roads as far as here today, where they engaged a pilot car to direct them to Cleveland. The start was made from New York in evening clothes, which were exchanged for overalls the following morning. Included in the wager is the condition that the losers must pay all expenses and if the automobilists reach the Windy City on scheduled time they are each to get a suit of clothes of the highest quality to be found in New York or Chicago.

#### LIVELY LINCOLN BUSINESS

Lincoln, Neb., April 17—That automobiling is getting a solid foothold in the western states is demonstrated in Lincoln. One year ago there was but one automobile agency and garage in town and all told not fifteen owners of cars. Thus far this year there are nine automobile agencies and about three times as many cars owned by local people. The outlook for a good season is bright and the dealers are ready to meet the demand.

The largest garage in town is that of the H. E. Sidles Cycle Co., at 1517 O street. Mr. Sidles started in business in May last year and within 20 weeks sold twenty-three cars. He has the agency for the Buick, Thomas and Cadillac, and has sold twelve cars thus far this season. The Wittman Co., at 205 South Eleventh street is the local representative of the Pope-Hartford, Pope-Toledo and Pope Waverley. The Glide is handled by Shore & Beach, at 707 O street, who have the state agency for this car. The Oldsmobile and Winton are handled by J. M. Vananken, who has his store at 208 South Eleventh street, where the local agent of the White steamer, F. B. Parkwood, has also established headquarters.

The A. L. Girard Cycle Co., now at 1304 O street, handles the Queen and has the exclusive agency for the state south of the Platte river. A new garage is being erected for this company at 114 North Thirteenth street. The More Auto Co., 826 P street, has the agency for the Orient buckboard, Cameron and Courier, south of the Platte river. Ramblers are represented by the Mockett-Saar Automobile Co., which also has the agency for the state territory south of the Platte river. Its garage is at 1418 O street. J. F. Lansing & Son, 202 South Twelfth street, handle the Grout steamer, having been granted the agency for Nebraska and the territory west of the Mississippi river.

Quite a number of prominent makers have no agents as yet, but it is likely that within a few weeks the dealers' colony will have been increased, as there is talk of several newcomers. There also is an automobile livery in the town, which is under the management of W. H. Gillmore, with headquarters at the Lindell hotel.

# AFFAIRS OF THE CLUB MEN

**To Incorporate**—A general meeting of the Automobile Club of Buffalo will be held within a few days to take steps to incorporate the club under the laws of the state of New York.

**"On the Stroke of Twelve"**—The new club house of the Automobile Club of Buffalo is being kept open until midnight nowadays, with service in the dining room until that hour.

**Shattuck Needs Rest**—Albert R. Shattuck has resigned from the chairmanship of the Automobile Club of America building committee, on account of ill-health, and will shortly go abroad to recuperate. It is expected that the plans for the new club house in New York will be ready to submit to the members at a special meeting for instruction of them within 2 weeks.

**Orphans' Day Prospects**—Arrangements for the New York Motor Club's celebration of Orphans' day on June 7 are progressing smoothly and rapidly. Invitations to owners and tradesmen to donate cars are in the printer's hands and will be sent out broadcast this week. Samuel A. Miles, chairman of the committee, has received letters from Chicago, Pittsburg, Buffalo, Boston, Worcester and other clubs telling of their intention to also celebrate the day.

**Club On a Michigan Lake**—George S. Hodges, of Pine Lake, Mich., is to build on the banks of Pine Lake a club house for the Detroit Automobile Club. There are three members of the Detroit club in Pontiac, which is near Pine Lake, and they, as well as other members of the club, have long desired a country club. The house will be 32 by 60 feet, with a wide veranda along the south and east sides. On the first floor there will be a large assembly room, dining room, reading room, library and kitchen, while sleeping and bath rooms will be on the second floor.

**Bridgeport Banquets**—The third annual banquet and election of the Automobile Club of Bridgeport, Conn., was held last week, being attended by about seventy-five members and their friends. A. L. Riker was elected president; T. H. MacDonald, vice-president; Frank T. Staples, treasurer; W. E. Seeley, Jr., secretary, and Frank Miller, David F. Reed and M. V. Doud, with the officers, are to form the board of governors. The toastmaster was F. W. Bolande, former president of the club, while the principal speakers were State Highway Commissioner James H. MacDonald, S. T. Davis, Jr., A. L. Riker, D. F. Reed, Postmaster W. H. Marigold, W. S. Teel, Jr., Henry Setzer, E. F. Hallen and Frank Miller.

**Tour To St. Paul**—Secretary B. A. Ledy and Vice-President George C. Knoche, of the Automobile Club of St. Paul, armed with an invitation from their home club, the Commercial Club of St. Paul, the governor of the state and the city officials, attended a meeting of the Chicago Automobile Club Tuesday and proposed that a tour be made in July from Chicago to St. Paul, in which all clubs in the United States be invited to participate, Chicago to be the assembling point and the Chicago club to have the direct management of the tour. The distance is about 500 miles, and as the roads are good, the trip can be made in 3 or 4 days. The Minnesotans promise a continuous round of gala events for 3 days or more at the end of the run and the

lids will be entirely removed from both St. Paul and Minneapolis. Automobilists from Cincinnati, Indianapolis, Louisville, Omaha, Lincoln, St. Louis and other clubs of the south and west are expected to participate.

**Hotel Club Rooms**—The new headquarters of the Automobile Club of Springfield, Mass., have recently been opened in Hotel Worthy. Members of automobile clubs from other cities are invited to make the local club their headquarters when in Springfield. Luncheon will be served at all hours.

**Club Cops Galore**—Quick action has been taken by both the officers of the Automobile Club of Minneapolis, Minn., and the chief of police in appointing special police among the club members. Six were chosen last week and it is expected that reckless driving will soon be a matter of the past in the Minnesota city.

**After Climbing Glory**—At a meeting of the runs and tours committee of the Automobile Club of Philadelphia it was decided among other events to promote a hill-climb, to take place at an early date over one of the stiffish climbs which abound in Fairmount park and the Schuylkill valley. A parade is also scheduled for some Saturday afternoon in the month of May.

**Iowans Re-elected**—The officers of the Iowa Automobile Club, of Des Moines, Ia., were all re-elected last week. George H. Hippee, is president; D. B. Fleming, first vice-president; W. J. Riddell, second vice-president and captain; F. L. Kern, secretary; Charles Denman, treasurer; B. S. Dusenbury, consulting engineer. L. Aulman, E. J. Wilkins, W. P. Henry, George B. Hippee and F. L. Kern form the executive committee.

**On Historic ground**—The Bay State Automobile Association, of Boston, held its first club run Sunday. The destination was Ferncroft inn on the crest of the hill lying between Danvers and Middleton and commanding an excellent view of the country for miles around. Famous in revolutionary days, this inn has always proven a strong attraction to the motorists, and yesterday was no exception. Some 150 members and guests enjoyed the occasion, over seventy-five cars turning out for the trip. It was cold and chilly and at times there were flurries of snow, but this did not dishearten. President Lewis R. Speare and the members of the runs and tours committee felt fully repaid for their labors by the result of the day's outing.

**Parade Formation**—Grand Marshal Belding has issued a bulletin setting forth the arrangements for the A. C. A. parade in New York on Saturday of next week. The parade will form on lower Fifth avenue at 1:30 p. m., on the side streets, as follows: Guest division, Fifth avenue, east side, between Eighth and Ninth streets, Captain Homer W. Hedge marshal, pennant color white and blue; American gasoline touring cars, Washington square, east, Robert Lee Morrell marshal, pennant color blue; American gasoline runabouts, Ninth street, east, C. H. Gillette marshal, pennant color red; foreign gasoline cars, Tenth street, east, E. T. Birdsall marshal, pennant color yellow; steam cars, Eleventh street, east, Augustus Post marshal, pennant color white; electric cars, Twelfth street, east, A. H.

Whiting marshal, pennant color green; automobile clubs, Thirteenth street, east, A. R. Pardington marshal, pennant color white and red. Route is: Fifth avenue to 110th street, to Riverside drive, around Claremont, south on Riverside drive to Seventy-second street, west to Broadway, south to Columbus avenue, and disband. The grand marshal and the guests' division will review the parade at Seventy-second street and Riverside drive. By order of the governors no advertising devices or decorations on vehicles will be permitted.

**Its Maiden Effort**—The New York Motor Club held the opening run of its career last Saturday. Fifteen cars assembled at the New York and Brooklyn places of rendezvous and proceeded to Coney Island, where forty-one members and guests sat down to dinner at Stauth's Pavilion, a characteristic resort, and made merry to the near-by accompaniment of a free for all dance. The next run will be on a Sunday and to City Island, where a shore dinner and aquatic sports will be provided.

**Will Try Again**—A movement is under way to form an automobile club composed of representative Washington automobilists, and the project is being well received. Those who are taking an active part in the formation of the club include Charles E. Foster, Dr. Richard Kingsman, Clarence E. Harding and James E. West. Several preliminary meetings were held last week and a committee of five is now at work drawing up a constitution and by-laws. As there are upwards of 1,200 automobilists in the capital, it is believed a sufficient number can be interested in the establishment of a new club. A club house is already being talked of, and the more enthusiastic ones propose a country station. Present efforts, however, will be confined to getting the club started with a good membership. Washington once had an automobile club with a swell name and for a time it flourished like a green bay tree, but dissensions arose in the ranks and it died a lingering death.

**Louisville's Annual**—At the annual meeting of the Louisville Automobile Club, of Louisville, last Thursday, officers were elected for the coming year as follows: President, George H. Wilson, re-elected; first vice-president, Harrison Robertson, succeeding Biscoe Hindman; second vice-president, Biscoe Hindman, succeeding Dr. J. B. Bullitt; secretary, Dr. William C. Pfingst, re-elected; treasurer, J. B. Lewman, succeeding A. M. Robinson. The committee appointed to look into the progress of the new boulevard from Eastern to Western parks, with view of offering the park commissioners whatever services the club might be able to render in prosecuting the work, reported that the park board was making excellent progress and would probably have 4 miles of the new road completed within the next 3 months. The committee having in charge arrangements for the club's annual banquet reported that May 6 had been selected as the date. It will be the first banquet to be given at the New Seelbach hotel, and it is intended to be the first of a series of big annual dinners. Among the guests invited are: Governor Beckham, Mayor Grainger, the members of the boards of public



safety and public works, the park commissioners, the president of the board of aldermen, the presidents of the St. Louis and Indianapolis automobile clubs, and several prominent newspaper men.

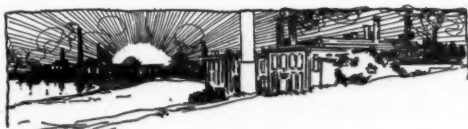
**Tour to Portland Fair**—Members of the Tacoma Automobile Club, of Tacoma, Wash., are beginning preparations for a club run to Portland, Ore., on the account of the world's fair which will be held there this year.

**Club To Uphold Law**—The directors of the Chicago Automobile Club have taken a decided stand in regard to the enforcement of the speed laws and a notice has been sent to members requesting them to keep well within the speed limit and not endeavor to take improper advantage of any leniency on the part of the local authorities. Members are asked to report any flagrant cases of violations of the law to the secretary, giving the license number of the car and the circumstances of the offense, so that proper action may be taken.

**Ask Special Privileges**—Officers of the Automobile Club of Buffalo are trying to induce the Canadian customs officers to make a special ruling in favor of members of the club in regard to the entry of automobiles into Canada for touring purposes. At present the Dominion customs laws require the payment of \$3 for a license and number; \$25 as a pledge that the car will be returned to the United States and a bond to the amount of 70 per cent of the value of the car. The \$25 is refunded if the car is brought back to the States within 3 months.

**To Boost Touring**—The Cleveland Automobile Club, in order to stimulate touring, offers two expensive loving cups to the members doing the most extensive touring and covering the greatest mileage in the season. One will be known as the Mileage cup and will be awarded to the member that owns the individual automobile that makes the greatest mileage over streets and public highways between May 1 and December 1, under the conditions made by the touring committee. These conditions provide that the mileage shall be recorded by odometer of standard make that meets the approval of the committee on points of accuracy and reliability. This odometer must be read and recorded by George Collister, chairman of the committee, on or before May 1 and prior to or on December 1. It shall not be operated by a traction wheel of the automobile to which it is attached. An affidavit concerning details of his mileage shall be furnished by a contestant if requested by the committee. The committee has the power to reject any competitor if it deems advisable, without stating the reason. It also has the right to interpret the conditions as it sees fit and change them if necessary. The other cup, known as the Touring cup, will be awarded to the member in good standing who has toured the most extensively in any automobile owned or controlled by himself between May 1 and December 1. A tour in this connection shall be understood to mean an automobile trip of not less than 100 miles in length over public highways and to include at least a one-night stop in a different locality from that in which the original start was made. The competition is attracting considerable attention among the members and Mr. Collister is receiving many inquiries regarding it.

## AMONG THE MAKERS



**Back Home**—The executive offices of the Pope Mfg. Co. and of the Pope Motor Car Co., now at 21 Park Row, New York, will be removed to Hartford, Conn., April 22.

**Four-Lung Queen**—The C. H. Blomstrom Motor Co., of Detroit, manufacturer of Queen cars, has completed its first four-cylinder, shaft drive car. Twenty-five of these cars are now being built.

**In York State**—It is rumored that the plant formerly occupied by the Groveville Mills, at Groveville, N. Y., will be purchased by New York capitalists and that an automobile company will locate in it.

**Record Output**—W. E. Metzger, the Cadillac sales manager, stated in a conversation with a MOTOR AGE man in New York last week that the factory's output had just been raised from thirty to forty cars per day.

**Pierce Offices Moved**—This week the general offices of the George N. Pierce Co., of Buffalo, will be moved from their present location in the Potter building to the new city salesroom at 758 Main street.

**Ten a Day**—R. M. Owen, sales manager of the Reo Motor Car Co., made a tour of the agencies of the company in the middle west last week. He reports that the daily output of the Lansing factory is now ten cars.

**More Room for Ramblers**—Two additions are to be erected to the plant of Thomas B. Jeffery & Co., of Kenosha, Wis. The new buildings will increase the floor space of the factory by more than 75,000 square feet.

**Grout Gets Engine Expert**—The Grout Bros. Automobile Co., of Orange, Mass., has secured the services of H. L. Radford, formerly of Boston. Mr. Radford has had 12 years' experience with hydro-carbon engines.

**B. O. K. Bankrupt**—The B. O. K. Tire Co., of Chicago, was declared bankrupt last week in the district court. Sidney C. Eastman, referee in bankruptcy, has called a meeting of the creditors for April 25 in the referee's office in the Monadnock building, Chicago.

**Early Birds**—Both the Columbia and Pope-Hartford 1906 models will be on the roads in the vicinity of Hartford, Conn., in 2 or 3 weeks for a summer's try out, manufacture now being in progress. Both the manufacturers expect to make 1906 deliveries in October.

**To Sell Searchmont Plant**—A meeting of creditors of the Searchmont Automobile Co. was held at the office of Referee in Bankruptcy Theodore M. Etting, in Philadelphia, last week. Permission was given the trustees of the bondholders to sell the property, which is located in Trainer.

**Promoter Unpaid**—George A. Newman, of Syracuse, has brought suit against John S. Leggett and Erwin De Long to recover \$500. He is the assignee of a claim held by Frank P. Costigan, who claims he was never paid for promoting the J. S. Leggett Mfg. Co. The concern was floated and is now located at Seneca Falls. Mr. DeLong recently severed his connection with the Leggett company and

is at Syracuse with the Grody-Bissell Garage Co.

**New Buick Manager**—H. F. Field, formerly president of the concern of Field, Hinchman & Smith, engineers and architects, of Detroit, has become general manager of the Buick Motor Co., of Jackson, Mich.

**Demonstrating Dunlops**—E. E. McMaster and H. M. Schneider, of the Hartford Rubber Works Co., of Hartford, Conn., are touring the country in an automobile giving practical demonstrations of Dunlop detachable tires.

**Strike To End**—The 3-weeks strike of body-makers and painters in the plant of the Woods Motor Vehicle Co., of Chicago, which has tied the factory up for that time, is expected to end this week. The strike has been a sympathetic one, but has affected eighty employees.

**Time Yourself**—The latest invention of A. L. McMurtry, of timing apparatus fame, is a mechanical attachment to an automobile, which on the pressure of a button will start a watch. The watch will be stopped automatically at the end of a mile. It is, in a word, a timer combined with an exact odometer.

**New Stevens-Duryea Factory**—The offices of the automobile department of the J. Stevens Arms & Tool Co., of Chicopee Falls, Mass., manufacturer of Stevens-Duryea cars, have been removed to the factory addition, called the Power plant. The automobile department was formerly located in the Hill plant. The concern invites visitors to inspect the new plant.

**New Hartford Car**—Efforts are being made in Hartford, Conn., to promote the Town and Country Automobile Co., to manufacture a four-cylinder car designed by Frederic C. Billings, who designed the old Toledo steamer. The Town and Country car is a further development of the car which Mr. Billings built in the Billings & Spencer factory and which he has used for two seasons.

**Air-Cooled Fight Postponed**—The trial of the action of the New York Automobile Co. against the H. H. Franklin Mfg. Co., of Syracuse, has been adjourned to the June term of the New York state supreme court. It was stated that an adjournment was necessary, as certified copies of patents must be procured and evidence taken in France and Germany, certain patents being involved in the action.

**Delivery Cars En Tour**—The Knox Automobile Co., of Springfield, Mass., recently ran twelve Knox delivery wagons from the factory to New York over the road, the cars following close to one another through the important towns and cities. When Hartford was reached the delivery Knoxes of the Electric Express Co., Ropkins Brewery, Union Grocery and S. A. Miner led the procession through the principal streets.

**Sleighs and Automobile Bodies**—The Cartier-Chapman Co. is a new Wolverine concern located at Ludington, Mich., and organized for the manufacture of automobile sleighs, automobile bodies, cape and canopy tops and sliding glass fronts. A. E. and Warren A. Cartier, of the company, are ex-lumber dealers, and J. A. Chapman has been identified with the sleigh and automobile building business. A. H. Hopkins, lately with the Fuller Buggy Co., has charge of the sales department.

# LEGAL SENSE AND NONSENSE

## SMOKY CITYITES IN ARMS

The new automobile law of Pennsylvania—the Grim bill—passed the house last Tuesday, went into conference on Wednesday and, despite an unsuccessful effort to so amend the bill as to make it possible to secure Philadelphia licenses at the office of the local boiler inspector bureau instead of at the state highway department, was sent to the governor, who will doubtless attach his signature.

While the new law does not contain everything that the Automobile Club of Philadelphia and its helpers fought for, it is a vast improvement over the old measure, and Quaker automobilists seem to be satisfied with the outcome. From the other end of the state, however, the Pittsburg Automobile Club members are up in arms at what they consider the heavy tax and unreasonable restrictions imposed by the state, which are in addition to the city license tax. The Smoky Cityites, it is understood, have held a meeting and decided to instruct all the club members to refuse to pay the state tax or take out city licenses. They have retained Congressman James F. Burke to defend any member who may be apprehended for violating the city ordinance on the ground that the double licensing scheme is unconstitutional and that Pittsburg automobilists are being discriminated against.

In this connection it must be remarked that the "country" members are not at all satisfied with the new law, and from what they say the outcome is a virtual victory for the automobilists. The "first-class townshippers" are sore because of the clause which requires the posting of legible signs indicating the limits of their respective jurisdictions on all roads used by automobilists. This feature of the bill was inserted at the request of the Automobile Club of Philadelphia, which a year or two ago offered to put up such signs all over the suburbs at its own expense. The township authorities refused to favorably consider the request on the plea that such signs would "detract from the beauty of the landscape"! And now they are compelled to put up the signs and pay for the work themselves. Shocking!

The principal provisions of the bill as passed are as follows:

Motor cars shall not be operated except by persons duly licensed by the state highway department and which shall, in consideration of a \$3 fee, provide two number tags for each car. Each applicant for license must give his name and address under oath and licenses will not be granted to those under 18 years of age. Only the state tag shall be carried by any car while traveling within the state, all tags belonging to other states or cities being removed before entering. Within the corporate limits of cities, towns and boroughs a speed of 10 miles an hour is permitted and without the limits a 20-mile rate is permitted except in such "first-class" townships where a lower limit is fixed, in such places sign posts being placed at distances 1/2-mile apart clearly setting forth the speed limits. A number tag is to be carried in front and rear, the latter is to be illuminated after sunset. Head and tail lights, as well as a horn or other signals and brakes are required. Signals are to be given when approaching corners and the driver must stop the machine on signal from horse drivers. All operators must carry their license papers and show them on demand to constables and policemen. Licenses may be issued any time after the first day of January in each year and all expire on the last day of December in the same year. Power is given constables and police



to arrest any motorist who violates any of the provisions of the law, and if the operator cannot secure sufficient bail pending his appearance in court his machine can be held in lieu of the bail; and if after the time of the trial no bail shall be forthcoming the court can make whatever disposition of the vehicle it shall deem just and proper. For violating any of the sections of the law a fine of not less than \$10 nor more than \$25 may be imposed and in case of failure to pay this within 48 hours the defendant can be committed to jail for a period not exceeding 10 days. For the second violation the fines are from \$25 to \$100 or jail not exceeding 30 days, together with a 6-month revocation of license. All fines collected are to be paid to the districts in which they are collected and devoted to the improvement of the highways.

## PINCHING LULL IN HARTFORD

Powerful influences have been at work during the week with the police commissioners of Hartford, Conn., and the result is that Policemen Bown and Allen, special duty plain clothes men, have been called off from the automobile speeding detail and motorists have been immune from arrest for a week, and unless the violations are particularly flagrant there will be no more arrests for a month at least. This has been done because it was feared that the number of arrests would have a bad influence upon the committee and members of the legislature who will soon consider the question of increased speed latitude.

Complaints had come to the police department thick because a number of Hartford motorists have been running cars all winter while the local manufacturers have been testing cars all through the deep snows. With the return of good weather fast time was begun in the street.

An unpleasant episode of the speed arrest bee has been the often postponed trial of Robert Skinner, charged with exceeding the speed limit. Young Skinner is possessed of a very wealthy father, Colonel William C. Skinner, vice-president of the Colt's Arms Co. When his case came up both Judge Garvan and Prosecutor Calhoun side-stepped the case. The associate judge and prosecutor were called in and from day to day the case has been postponed. Meanwhile the papers have been clamoring for the trial and referring to the fact that only testers and demonstrators have been brought in and that rich men's sons were immune from trial. The incident has kicked up so much of a stir in Hartford that Colonel Skinner recently announced that he wanted his son tried with the other offenders, if such they were, and that if declared guilty he would accept any sentence for the boy. This action has cleared the atmosphere and has done much to remove the sting that the failure to try brought about. Young Skinner was tried on Monday and was fined \$15 and costs.

## FREED OF ASSAULT CHARGE

An automobilist of Indianapolis last fall ran over an elderly woman, breaking her ankle. The woman died after lingering about 6 weeks and the driver was charged with assault and battery with intent to kill. The case has been fought hard, the prosecutor trying to have the motorist sentenced severely. A few days ago a verdict was rendered in his favor.

## L'HOMMEDIU WRANGLE

New York state motorists who have been fighting against the proposal of Senator L'Hommedieu that motor cars be taxed according

to horsepower have found out one thing at least in their struggle. That is that this same Senator L'Hommedieu while he may not know much about drafting rational automobile legislation is most persistent in his efforts to advance the bill which he has drawn. There was another hearing on the bill last week. A delegation of motorists headed by President W. H. Hotchkiss, of the New York State Automobile Association, riddled the bill with arguments and Mr. L'Hommedieu is quoted by one automobilist as admitting that he himself did not think the bill could be passed. At the hearing were several legislators who are favorable to the position of the motorists, but it was after they left the hearing that the committee suddenly decided to report the bill to the legislature instead of holding it for amendments as the motorists had understood was to be done.

Now the fight will be in the legislature and it is feared that Senator L'Hommedieu's persistent advocacy of this tax will make the final struggle a keen one. There is strong hope, however, that the fight will be won by the automobilists. Already their opposition to the measure has resulted in a number of changes in the provisions of the proposed law. At first it was planned to put the tax at \$2 a horsepower a year. Then the amount was reduced to \$1 a year a horsepower and commercial vehicles were exempted. The motorists then pointed out that under the law the manufacturer and the dealer would pay a tax on each car and then the buyer would pay another tax on the same car. That argument brought about an amendment exempting machines in the hands of manufacturers and dealers. At first it was proposed to devote the proceeds of this tax to the general uses of the state. Motorists objected to that, saying if they were to be taxed the funds should be devoted to the maintenance of the roads. One amendment was made sending the proceeds of the tax to the fund for building roads under the Higbie-Armstrong law and last week the amendment was amended to provide that the money should go into a fund solely for the maintenance of good roads.

With all these changes it is considered likely that the bill is so much patched up that Governor Higgins would not sign it if it should pass. The fact that the changes have been made indicate also that the framer of the bill has no very clear idea of the conditions prevailing in the state. It is contended that the measure even as it stands now is unconstitutional because it is the rankest sort of class legislation. It taxes the owner of a pleasure car from which no revenue is obtained and exempts the commercial vehicle which earns money for its owner. Another strong point made against this form of tax is that the cities now pay 85 per cent of the money expended in improving highways, from which the farmer reaps the greatest benefit. Under this L'Hommedieu bill the motors of physicians and many others which practically never leave city streets will be paying more money to be devoted for the benefit of the users of country roads. It is further con-



tended that probably most of the money raised by the tax would go to additional officers to be added to some department of the state government.

For the first time at the hearing last week the manufacturers of the state appeared in opposition to the bill, G. H. Stilwell attorney for the H. H. Franklin Mfg. Co., and C. T. Terry, attorney for the N. A. A. M., speaking against the measure. Mr. Stilwell stated that the Franklin company made 1,500 automobiles a year and under the proposed bill would have to pay a tax of \$30,000 a year. He said such taxation would drive makers out of New York.

#### EVANSTON GREET'S SPRING

Last Sunday the police officers of Evanston, a suburb of Chicago, opened the spring arresting season by bagging all automobilists who were found driving through the village at a greater rate of speed than 8 miles an hour. Ten automobilists were arrested, among them being the president of the Chicago, Milwaukee & St. Paul railroad and the presidents of two other large corporations. All were fined \$15 and costs, but three of the motorists refused to pay the fines and will fight their cases in the higher courts.

#### ILLINOIS BILL PROGRESS

Unless all the strict pledges that have been made are ruthlessly broken and well laid plans of certain members go for naught, before the general assembly completes its work Illinois will have a fairly satisfactory automobile law. At the beginning there was wide difference among the senators and representatives in their ideas as to what was really needed in the way of a statute regulating the management and speed, especially on the country highways, of vehicles that are propelled by other than old-fashioned four-footed horse

power. But owing, almost entirely, to the efforts of conservative automobilists, particularly the Chicago Automobile Club, the automobile dealers of Chicago and Sidney S. Gorham, secretary of and attorney for the Chicago Club, sentiment has changed.

The work, largely of an educational nature, has resulted in centering the interest upon Senate Bill 296, introduced on March 2 by Senator Humphrey, the enacting clause of which reads: "For an act defining motor vehicles and providing for the registration of the same and uniform rules regulating the use and speed thereof." It was referred to the committee on roads, highways and bridges, of which Senator Anderson, who comes from one of the rural districts, is chairman. In its original preparation the bill carried provisions that if made into laws would have worked great hardships upon the owners and drivers of automobiles. But Mr. Gorham went to Springfield as the official representative of the Chicago club and told the senators that a radical law would not only be against public interest but could not be enforced. He soon convinced them that the devotees of automobiling in Illinois were in favor of a fair law and would do everything they could to make it effective. Mr. Gorham took a car with him and proceeded to give the legislators, two, three, four and more of them at a time, exhilarating rides about the city and into the country.

Their effect upon the lawmakers, to most of whom the rides were their first motoring experience, was more apparent than anything witnessed in Springfield in a long time.

Representative Heinel, of the Jacksonville district, had previously introduced a bill of his own draughting in the lower house, but it

got no farther than the committee. After a few rides in Gorham's car he showed no disposition to fight for it and was seemingly willing to let his little creation die on the stocks. It was not so complete or comprehensive in many of its provisions as Humphrey's bill, so with a statement that he had accomplished his main object, the assured passage of some automobile law, Mr. Heinel acknowledged his contentment and accepted it in preference to his own. This leaves a clear right of way for No. 296, and that it will go through without further serious obstruction is the confident belief of everyone who is interested in the measure.

#### RAKE-OFF FOR SECRETARY?

Buffalo automobilists have detected a queer little kink in the procedure relating to the registration of motor cars at the office of the secretary of state in Albany. Under the law the secretary of state, on payment of \$2, designates for the applicant a number for his car and sends a little metal plate to be fastened to the machine. The law requires that a tag bearing the allotted number in numerals of a certain size must be attached to the car. Buffalonians who have applied have waited a week or more without hearing anything from Albany. In the meantime, however, they have received letters from firms in New York and elsewhere who make number tags for motor cars. In some cases these firms have informed the motorist that such a number has been allotted to him and have asked that he buy the tag from them. Thus it seems that the man who pays the license fee is not informed of the number he is to have until after persons interested in making money out of his necessity have had a chance to learn the number in the course of their own business.

## THE READERS' CLEARING HOUSE

#### SCREEN IN BY-PASS

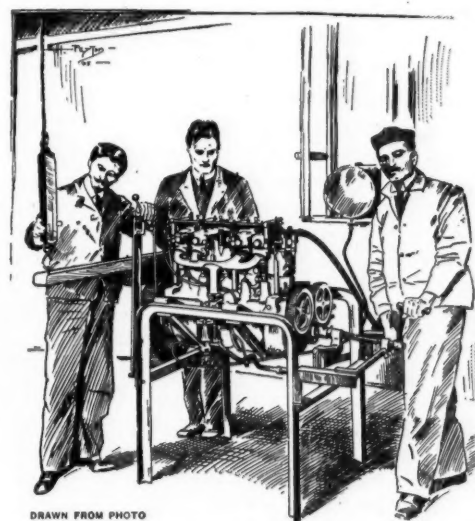
Brookville, Pa.—Editor MOTOR AGE.—Please inform me of the best kind of wire gauze to use in the bi-pass of a two-cycle engine; also the number of meshes to the inch.—R. E. TWYFORD.

MOTOR AGE does not advise the use of wire screens in the bi-pass of a two-cycle engine. Possibly it reduces the frequency of base explosions slightly, but it requires cleaning occasionally and retards the passage of the gas. It also is a good collector of carbon and becomes choked. If it is intended to use a screen have it made of alternate sheets of 100-mesh and twelve-mesh gauze. The brass gauze is preferable as it does not rust.

#### CRANK SHAFT BEARINGS

Columbus, O.—Editor MOTOR AGE.—In a large four-cylinder vertical motor which is the better and why, bearings at both ends and between each pair of throws of the crank shaft; two end bearings only, or two end and one central bearing between the pairs of cylinders? The question of crank shaft bearings is much discussed at present and I would like to know through the Readers' Clearing House what are the views held by MOTOR AGE.—T. D.

If the crank shaft is small and not of great strength the five bearings will stiffen it. Assuming that the shaft is sufficient in section to be used without a support between the first and second, third and fourth cylinders, it is then a question for the designer whether,



DRAWN FROM PHOTO  
TESTING HORSEPOWER OF REMODELED MORS MOTOR

with the bearing length which he must maintain, he will make three or five bearings. When designed perfectly MOTOR AGE cannot see any advantage or disadvantage in either system, except that on small motors the five-bearing construction necessitates having the connecting rods offset to get the bearing length between the end cylinders. This is not good practice, as when wear is produced in the bearing it soon increases, on account of the effect of the tilting action of the offset rod. End bearings only are not enough in most motors.

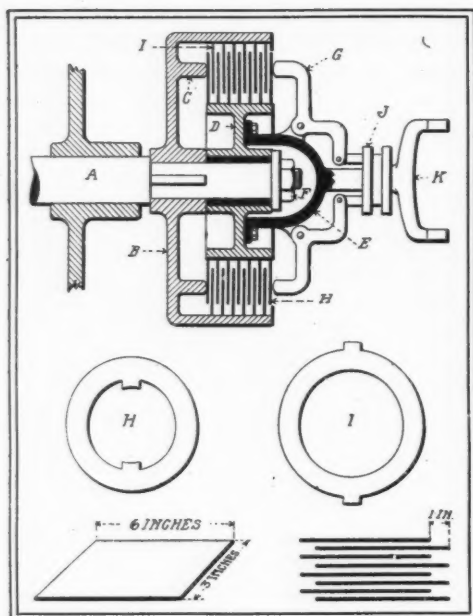
#### COPPER WATER JACKETS

Chicago, Ill.—Editor MOTOR AGE.—Can you tell me if the use of the copper water jacket is patented, and if so who owns the patent? I notice several manufacturers are using it, but I have not been able to find out anything about it.—C. E. ANDERSON.

There is no basic patent on the use of copper water jackets for gasoline engines. What patents there are on this feature pertain only to details of construction, or method of fastening, and in no way limit the use of copper water jackets to certain concerns. Manufacturers of spun copper produce the jackets, which are then attached by the manufacturer.

#### INCREASING MOTOR POWER

New York, N. Y.—Editor MOTOR AGE.—Last week I made some tests at Gaston Huszar & Co.'s repair shop that may interest other readers. C. A. Gould's 18 horsepower 1903 Mors car was taken into the shop and the motor overhauled according to instructions from the Paris Mors office. The compression was increased, a 1905 carburetor put on in place of the old one and various minor changes made. The motor was then put on Huszar's testing stand and a careful brake test made. The motor ran perfectly as low as 180 revolutions per minute and when under full load showed remarkable regularity and smoothness, supporting indefinitely 25 horsepower, and at times registering much more. The highest



CONSTRUCTION OF MULTIPLE DISK CLUTCH  
PRINCIPLE OF THE CLUTCH

verified reading was 27.2 horsepower at 1,800 revolutions.

The above test is especially interesting in view of the fact that the car is well known, having been raced at various times and always giving a very good account of itself. Now that the horsepower has been raised from 18 to 25 without increase of weight, it is expected that the car will show up very well in road tests. The photograph herewith is of the motor mounted on the stand, showing a part of the brake arm and the scale.—S. M. THACKARA, JR.

#### LOW AND HIGH TENSION

Denver, Col.—Editor MOTOR AGE—We hear a great deal at the present time of low and high tension magnetos being used to give current for car ignition, and I suggest, if it has not already been done in MOTOR AGE, that you publish in the Readers' Clearing House illustrations and description of low and high tension magnetos, explaining the difference between the two. Also, is it difficult to start a four-cylinder motor with a low-tension magneto and at what relative speed with the motor must the magneto run to ignite a one, two, three or four-cylinder, four-cycle engine? Are the magnets used in magnetos permanent enough for three or four seasons' use or will they be all right for the first year or so and then weaken in the third or fourth so that ignition troubles will result?—H. S.

All magnetos consist of essentially but two parts, the magnets and the armature. The illustration shows the typical magnet form at A, and B that of the armature. The armature consists of an H-shaped casting wound with wire and having through its center a shaft mounted in bearings. The permanent magnets, which usually are three or more in number, are placed around the armature as shown in the illustration. The armature is then either rotated or oscillated by its shaft. Being permanent magnets there is a flow of magnetism from N to the S pole. This passes through the armature coil. As the armature is moved these lines of force, as they are called, are broken. Breaking the lines of force generates a current in the armature which varies in strength at different points in a revolution, and varies with the speed. In a non-technical way this is the principle of operation of all magnetos. The ordinary direct

current magneto has on its armature shaft a commutator from which the current is taken by two brushes. In the alternating machines one of the armature terminals is grounded to the shaft while the other leads to the coil. In the alternating low-tension type the break in the cylinder is so arranged that it takes place when the armature current is maximum, for, as previously stated the current varies at different points in the armature rotation. In the high-tension type an interrupter is placed on the machine itself in order to produce a break in the primary circuit when the current is maximum.

A good permanent magnet should retain its magnetism for several years. Vibration causes a loss of magnetism, but as it is such a simple matter to remagnetize a permanent magnet this one thing will not condemn the system. The starting speed for magnetos is about 200 revolutions per minute and as it does not take a very quick pull to get this speed, it is quite easy to start on the magneto. The number of cylinders the machine will ignite is not a function in the speed, as the same starting speed will fire any number of cylinders.

#### POWER AT DUSK

Howard, S. D.—Editor MOTOR AGE—I have noticed every time I am driving my one-cylinder runabout at just about dusk, that the motor seems to develop more power than it does during the day. The difference is very noticeable, but no one has been able to explain it to me. Can you tell me why it should be so, and also how I may secure the same power at all times? I have tried every way, changing the mixture, etc., but the motor always develops more in the evening than at any other time. I would like to be able at all times to develop the power there is in it then. How many small scratches be taken from the surface of the cylinder? There are one or two in mine where the pin through the piston has extended a little too far and scratched the cylinder wall enough to make it rough.—J. W. THOMAS.

The statement that increased power is obtained at dusk is evidently due to optical illusion. It is quite frequently claimed that the power of an automobile increases as the sun goes down, but investigation and repeated trials have failed to substantiate the claim. There is no reason known to MOTOR AGE why a gasoline engine should develop more power after nightfall. The proper way to treat a badly scored cylinder is to have it rebored and a new piston fitted. If the grooves are only slight they will cause no trouble. The piston should be removed and the piston pin set back. At the same time file the burr off the piston and smooth the cylinder cuts with fine emery.

#### MULTIPLE DISK CLUTCH

Syracuse, N. Y.—Editor MOTOR AGE—Will you explain in the Readers' Clearing House the construction of a multiple disk clutch and state what advantages are claimed for it?—T. Mc. K.

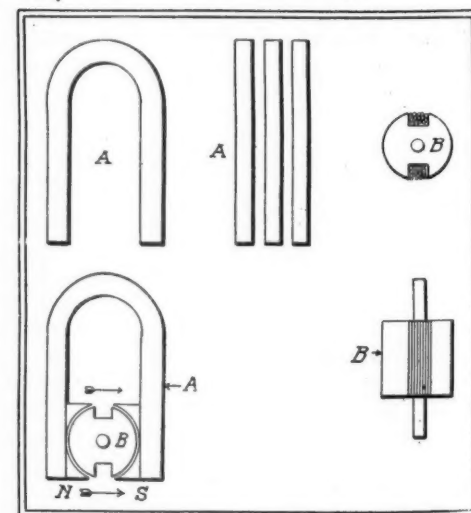
The illustration shows the arrangement of a disk friction clutch. To illustrate its action, cut twelve pieces of paper 3 by 6 inches and arrange one on top of the other as shown. With these resting on the table press the finger on one end so as to hold every alternate sheet. Grasp the opposite end and move in and out. Notice that there is scarcely any friction.

Then place two silver dollars on the center of the top sheet and try to pull out the sheets. The disk clutch is this in principle. A housing B is keyed to the crank shaft. A drum D is loose on the shaft and has key slots to take disks punched with inward projections, as disk H. The housing is slotted to receive a disk with outward projections, as I. These disks are then assembled alternately so that if one is driven by the drum the two on either side are driven by the housing. The drum is free on the crank shaft and is held in place by a nut as shown. The cap E transmits the drive to the joint K. On the inside of the housing is a flange C against which the disks are forced. The shifting collar J operates the clutch by means of links which pull on the center ends of the levers G, putting pressure on the disks the same as illustrated by the sheets of paper. Usually a stiff spring is used to produce the pressure and the collar J is used only to hold the spring out of action. A clutch on this order is quite simple, light, small in diameter, takes up but little room longitudinally, and, if made properly, will pick up its load quite gradually. Ordinarily no adjustment is needed.

#### GRINDING VALVES

St. Thomas, Ont.—Editor MOTOR AGE—I hear a great deal of grinding valves, but have never seen it done, and where I am, with only one car in the city, it is no easy task to get little things done. In my car the valves sit horizontally and are beveled to 45 degrees at the peripheries. I would like to know if it is possible to have them ground in a common machine shop and if so what precautions must be observed.—H. E.

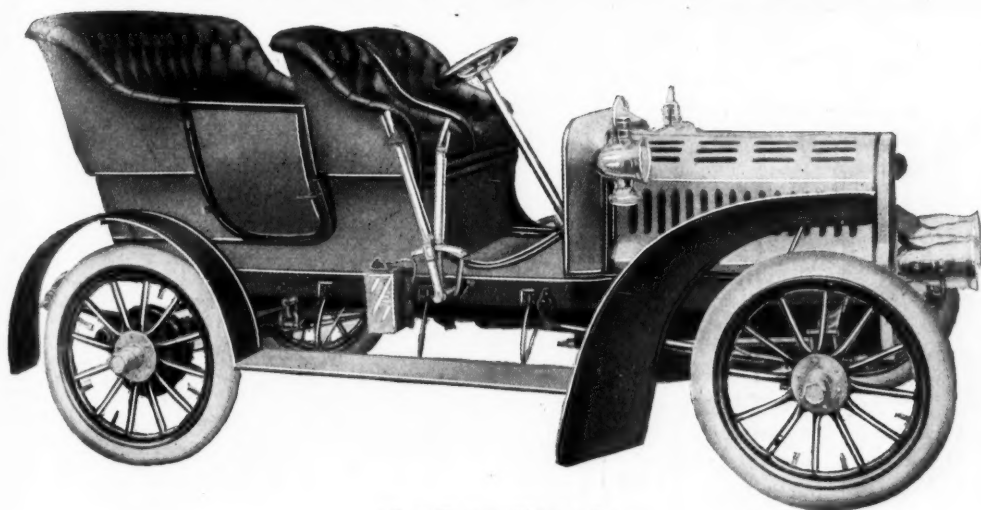
Unless the valve seat is badly fitted it is not necessary to take the job to a machine shop. All valves have screwdriver slots in their heads. Obtain some powdered emery and mix it with oil until a paste is formed. Lift the valve and apply a little of the mixture all around the seat. Replace the valve and insert a screwdriver in the slot. Then, applying a little pressure, rotate the valve on its seat about one-fourth of a turn. Keep up this motion back and forth, then shift the valve one-quarter of a revolution and repeat. This movement will cut the high spots in both the valve and the seat, making the joint between them more nearly perfect. Occasionally remove the valve and observe its bearing. When it shows bright all over the seat it may be removed and all the emery in the cylinder and on the valve carefully wiped until it is free from emery.



CONSTRUCTION OF A MAGNETO



# AUTOMOBILE DEVELOPMENT



THE FRAYER-MILLER CAR

## THE FRAYER-MILLER CAR

The use of a rotary blower cooling the cylinders by an air blast from a distributing pipe passing over the top of the motor is the unique feature of the 24-horsepower Frayer-Miller touring car manufactured by the Oscar Lear Automobile Co., of Columbus, O.

The main frame of the car has channel pressed steel sections four inches deep which taper towards the ends and are bent inwards alongside of the motor to give the necessary turning angle. They are of 5-32-in wall throughout. Two cross pieces, one a few inches from the front end of the side pieces and directly over the cross spring and the other slightly in front of the rear axle and directly above the cross part of the platform spring, together with the rear end piece, unite the side members, each cross piece being riveted and braced at the unions. Between the two forward cross bars extend 4-inch channel subframes, rigidly riveted in place and used for motor and transmission support. These are one-eighth-inch in thickness. Long curved channel spring supports for attachment to the rear ends of the back springs are riveted to the side and end members and curve outwards to throw the side parts of the rear platform spring outside the frame. Additional strength is given these supports by an angular corner plate integral with the support and which is secured throughout its length to the side and end pieces.

By using a 2 1/2-inch six-leaf semi-elliptic spring shackled at the ends to projections on the top of the steering knuckles and bolted to the center of the cross piece of the frame, a one point suspension in front is obtained. The rear platform spring has the crosspiece shackled by interlocking links to the front ends of the side springs, giving a central support midway between the rear axle and the transmission support. By this arrangement the frame is carried at four points, at both rear corners and two points midway of the side frame members. The three parts of the platform have six leaves, each two inches wide.

The tubular front axle is two inches in diameter with one-fourth-inch wall, has a six-inch central drop for engine and blower clearance, and at the ends carries ball bearing, Elliott type steering knuckles. A radius rod at each side extends from a bracket on the frame at the side of the foot board to a bracket on the axle and is tightened by a turn buckle.

Such rods are not needed with the rear axle because of the platform springs.

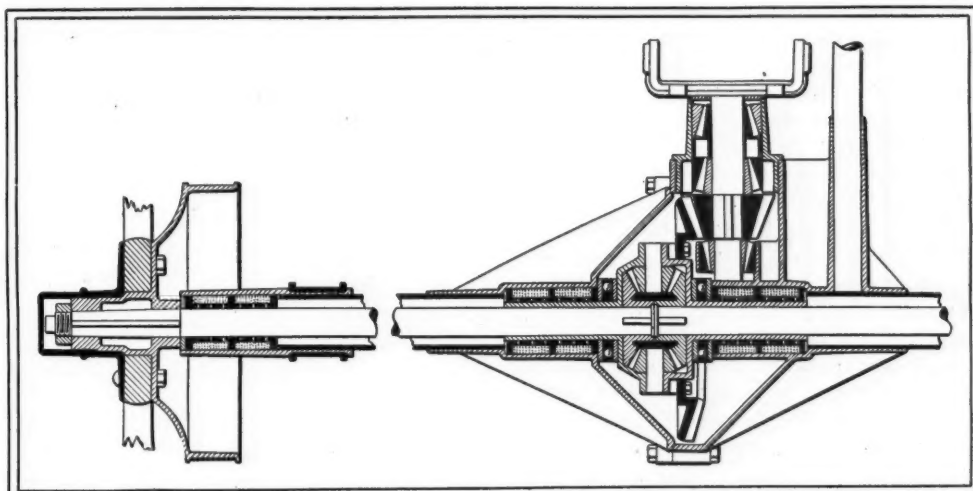
The live rear axle is divided near the center where each part carries one bevel gear of the differential. The differential casing carrying the four small pinions is extended at each side, forming trunnions for bearings on either side of the drive gear, a bearing for the axles also being within the trunnions. On each side of the differential are ball end thrust bearings to take the thrust from the drive and also to carry that of the car. The differential trunnions are lined with bronze for bearing surfaces and within them are lubricant depressions filled with absorbent waste containing oil. The cast steel axle housing is split vertically in the center and brazed to tubular extensions which carry the spring hangers. The housing carrying the pinion shaft, which is universally jointed with the propeller shaft from the transmission, is screwed into the main housing of the axle and three Timken roller bearings carry the short shaft, two cages of which are between the pinion and the universal joint and the third between the pinion and the axle. Integral with the axle housing is a sleeve for the torsion rod which at its front end is secured to the central cross piece of the main frame.

The 32-inch road wheels are of the artillery pattern and have 3 1/2-inch clincher tires. They run on plain tapered spindles in front, while the rears are keyed to tapered ends of the axle. The wheel base and tread are 96 and 56 inches respectively.

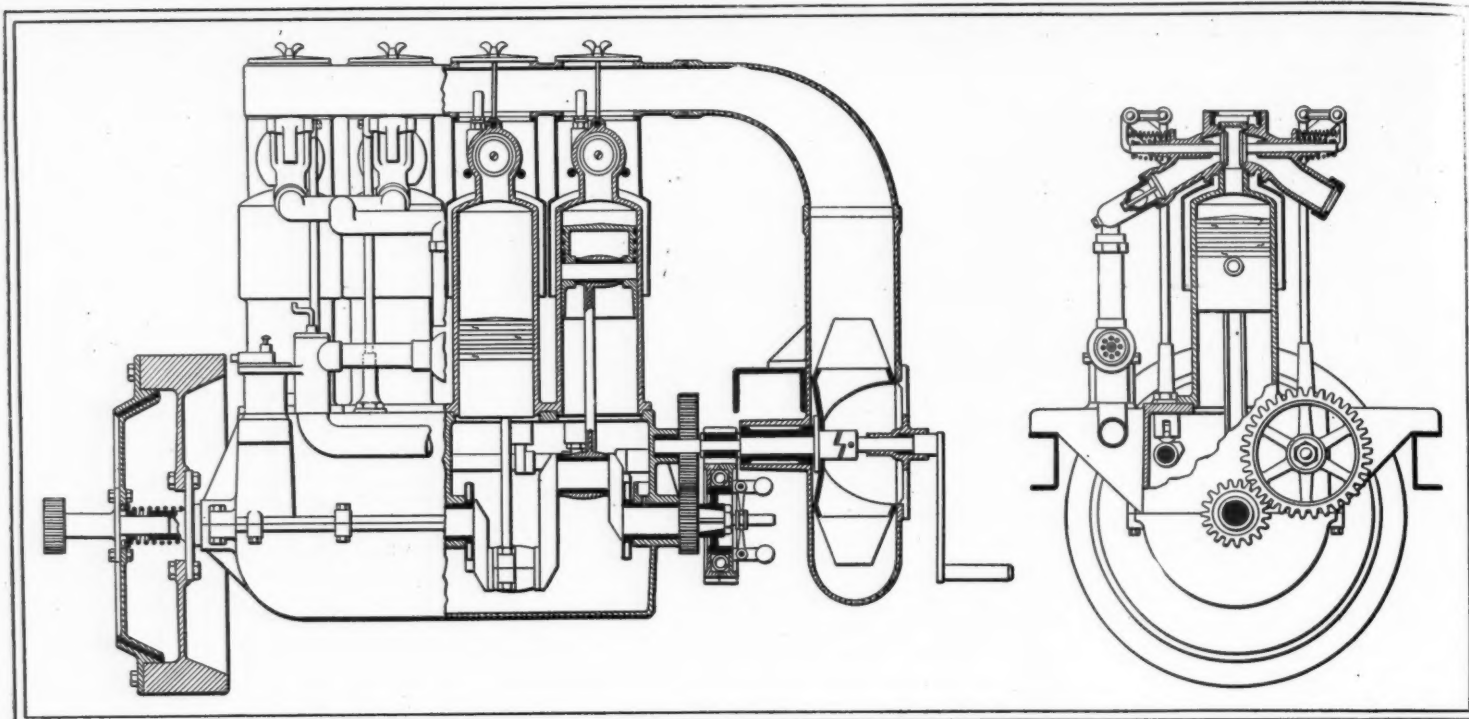
In the air-cooled motor the four separately cast, hardened grey iron cylinders have a bore and stroke of 4 1/16 and 5 1/8 inches respectively and at 1,200 revolutions per minute are rated at 24-horsepower. The crank case proper carries four integral arms that rest on the top of the sub-frame, to which they are bolted. They also support the crank shaft bearings, permitting the base of the chamber being removed without dismounting any part of the motor. Within the crank case and carried by it are two cam shafts for operating the mechanical valves, the inlet being on the right and the exhaust valves on the left. The bolts holding the cylinders to the case extend through the top of the crank case and the bearing caps, thus relieving the aluminum case of much of the stress of the impulses. The crank shaft, made of hammered open hearth steel cut from solid billets, has two end and a central bearing, that next the fly wheel being 4 and the others 3 inches long. All are 1 5/8 inches in diameter. The four throws are set at 180 degrees, the central bearing being between the second and third throws. All bearings are bronzed and have oil grooves for lubrication. The wrist pin bearings are 2 3/4 long and are bronzed in gridiron forms, filled with nickel-babbitt. On the rear end of the shaft is an integral flange to which the 18-inch, 140-pound fly wheel is bolted, and to the latter is bolted the clutch ring.

The hard grey iron pistons are long and have four compression rings of 1/4-inch face carried above the wrist pin. The rings of the re-turned type, with lapped joints are free to rotate and are finished under compression. The pistons above the wrist pin are turned 1-200-inch smaller than below the pin and are relieved 1-32 inch at the pin. The hardened steel pins work in bronze bushings in the eye holes of the I section steel connecting rods. The connecting rod caps are held in place by bolts with nuts keyed in place.

The combustion chambers are in the heads of the cylinders in the crown of each of which is a small chamber with the valves on opposite sides and the spark plug placed vertically in the top. The chamber is just wide enough to accommodate the movement of the valves causing the cool in-rushing mixture to flow past the exhaust valve heads to cool them. A separate case contains each valve, the union with the cylinder head being made gas tight by copper gaskets. The opposite valve casings are held to the cylinders by through bolts with nuts on both ends, so that either casing may be removed without interfering with the other one. The valves, with 1 1/2-



REAR AXLE OF THE FRAYER-MILLER CAR



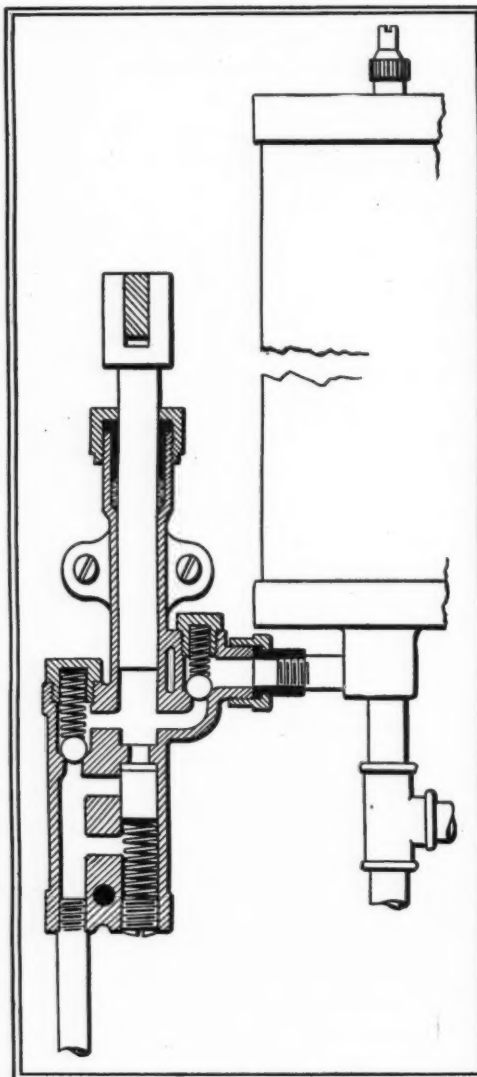
LONGITUDINAL AND LATERAL SECTIONAL ELEVATIONS OF THE FRAYER-MILLER ENGINE

inch heads and integral 5-inch stems, are actuated by a bell crank carried on a steel pin having bearings in two arms integral with the casing. The free end of the horizontal arm is pivotally connected with a vertical plunger rod which, at its lower end, works in the usual sleeve and guide, and carries a roller engaging the cam on the shaft. Both cam shafts are driven by large external gears at the front end.

The carbureter is placed on the rear motor leg at the right and connects with the inlet valves through branched tubing, causing the mixture to travel the same distance to each cylinder. Gasoline enters the float chamber of the carbureter at the top, its flow being regulated by the usual needle valve. The spraying nozzle, on a level with the center of the float, is placed in the middle of the air passage and surrounding it is a disk with a central opening which remains constant. Outside of it are two fan shaped openings covered by corresponding fan shaped plates which are moved for adjustment. Above the mixing chamber is an auxiliary air inlet valve under governor and hand control, the valve being in the form of a slotted tube within a sleeve and connected with the governor, the degree of projection of the tube openings beyond the sleeve being the means of governing. Hot air from around the motor enters at the base of the mixing chamber. The centrifugal governor is of the ball type and is placed on the gear on the crank shaft. It acts directly on the throttle, the closing movement of which is resisted more or less by a spring joined with a small accelerating lever on the steering wheel. Increasing engine speed is accomplished by pressing a spring on the throttle rod, keeping the engine under governor control at all times except when the throttle lever is placed clear forward, when the spring is closed and the throttle held wide open.

Jump spark ignition with current furnished from twelve cells of battery carried on the running board and connected with a quad vibrator coil on the dash and a roller type commutator on the crank case at the right side and driven by bevel gear from the cam

shaft, is used. The wires from the coil to the plugs pass through the air pipe used for the air currents from the blower, and are protected from moisture and oil. For advancing and retarding the ignition there is a lever on the steering column, which works through a rod within the column and which at its base has a bell crank connection with



THE NASH FUEL PUMP

the commutator on the motor crank case.

The most novel feature of the motor is the air-cooling system. At the front of the motor and in the position generally occupied by the radiator, is a rotary propeller-like blower, gear-driven from the crank shaft at a speed four times as fast as that of the motor. This blower is encased in an aluminum casing which at its top opens into a vertical pipe extending somewhat higher than the tops of the cylinders and which is then elbowed and passes rearwardly over the tops of the cylinders, tapering as each cylinder is passed. The cylinder walls are cast with small conical spines or spikes covering the part traversed by the piston rings and over the entire valve cage and walls is an aluminum covering enclosing the upper half of the cylinders and leaving an annular opening between it and the cylinder at its base. The top of this aluminum covering fits into an opening in the bottom of the air pipe from the blower, so that cool air will pass around the entire walls and exit through the annular opening at the bottom. In the top of the horizontal part of the air pipe are openings over all valves for removing the spark plugs. These openings are closed by caps held in place by thumb screws. By using aluminum in all parts of the air cooling system, the weight of the motor is moderate. The blower shaft, placed directly above the front part of the crank shaft, runs on a babbitted bearing lubricated by a separate lead from the force feed oiler, and carries on its inner end a small gear which meshes with a cushion gear on the end of the crank shaft, furnishing a spring drive for the blower and enabling it to start without sudden shock from the motor. The hub of this cushion gear is keyed to the crank shaft and has four radiating arms. Surrounding this hub part is a gear-toothed rim with four inwardly projecting arms and between these and those of the hub part are placed helical springs that absorb jar. The starting crank is mounted on the blower shaft, making the cranking movement opposite to that on most cars. From the blower pipe a pipe leads to the crank case for cooling within the cylinders.

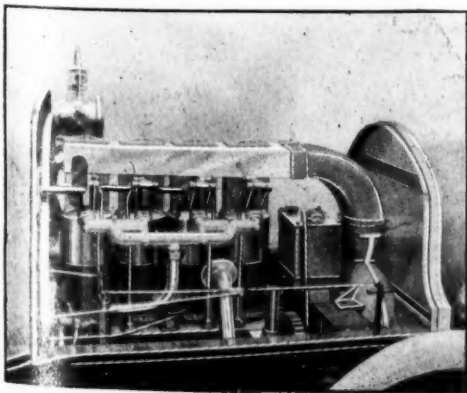


Lubricant to the motor is supplied through four leads from a Hill oiler carried between the blower and the front cylinder. The oil is delivered by the leads into centrifugal oil rings fastened to the crank throws through which the oil works past the bearings and out to the crank case. The cylinder walls and all other motor bearings are supplied by the splash, there being oil grooves to direct oil to the different bearings.

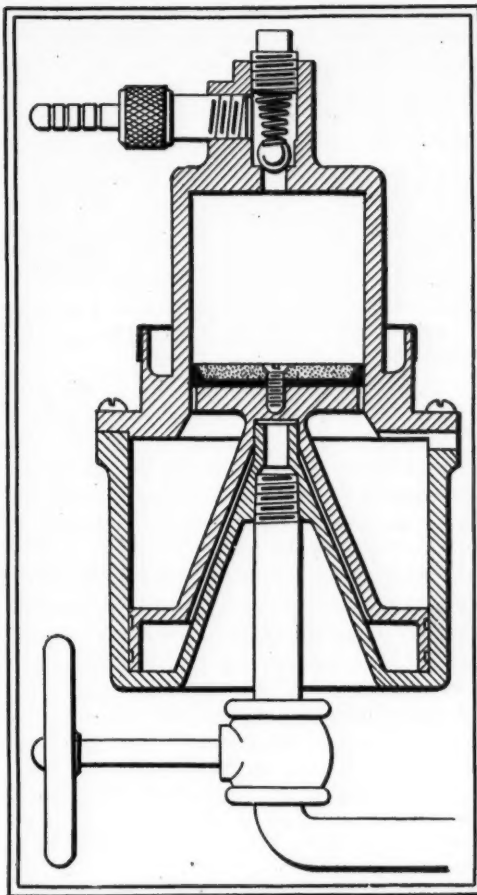
The leather faced clutch consists of a flange bolted to the rim of the fly wheel at the rear side, forming the female part, the male part being a cone bolted to a flange on the transmission gear shaft and held in engagement by a spring. In the sliding gear transmission case are three parallel horizontal shafts, the 1¾-inch squared main shaft carrying the pair of sliding gears. On the 1½-inch counter shaft are three gears solid with the shaft, while the reverse is low in the case on a separate shaft and slid into mesh when used. The counter shaft, with its gears, revolves on the direct drive, which is obtained by the front sliding gear with internal teeth being meshed with the pinion on the clutch shaft. The main shaft bearings are 1¾ inches in diameter and 4 inches long; the counter shaft bearings are 1½ inches in diameter and 2½ inches long, and all are of the semi-babbitted bronze type and lubricated by leads from the oiler. The reverse is oiled from the splash. One lever gives the forward speeds and reverse, the reverse being one-fourth, the slow one-third and the second speed two-thirds of the direct drive speed. A cardan jointed propeller shaft connects the gear with the rear axle.

Three brakes are provided, one on the drive shaft for regular use and two hand operated ones on the rear hubs. The latter have drums 12 inches in diameter and 2 inches wide, the leather lined bands being double acting, being tightened through short arms pivoted to the ends of the band and carried at the other end on spindles on short arms on a transverse shaft, carried by brackets on the rear half of the springs. This arrangement takes application strain off the axle. When the hub brakes are set the clutch is thrown out.

The steering gear, of the worm and segment type, has both parts made of soft steel, case hardened, and the former is mounted on eccentric bearings to take up lost motion. The steering wheel is carried on a 1½-inch mast which rotates with the wheel, and within this is a 1-inch tube carrying the quadrant for the spark and throttle levers. Within the latter are two rods to which the throttle and spark levers are fastened.



THE FRAYER-MILLER ENGINE



THE DASH AIR PUMP

The body is of the side entrance pattern with individual front seats and running board. The dash is of the curved type, affording protection for coil, sight feeds, switch and the other devices which are carried on it.

#### THE NASH FUEL PUMP

The Nash Pump Co., 23 Congress street, Boston, manufactures the Nash fuel pump for supplying fuel to burners of steam automobiles. The fuel is carried without pressure in a large tank in any part of the car and is pumped by this pump into a 1-pint tank, where it may be kept under pressure varying from 10 to 250 pounds. From this latter tank it flows to the burner as needed. The pump has a detachable folding hand lever for raising the necessary pressure in the small tank for starting the engine, and is operated by attaching this handle to the crosshead of the engine. It has a by pass system permitting fuel to return to the main tank when not needed in the pressure tank.

The fuel from the main tank is drawn past the check valve at the base of the pump at the left, and passing a valve, enters the pressure tank at the upper right. The piston is of the plunger design with the working handle attached at the top. The upward stroke draws fuel from the main tank and the downward one forces it into the pressure tank. At the base of the pump cylinder is the by-pass valve, held in place by a helical spring which can be adjusted to any tension by the screw seat it rests upon, an arrangement allowing by-passing to take place at any desired pressure. At the top of the pressure tank is a valve for the admission of air when needed.

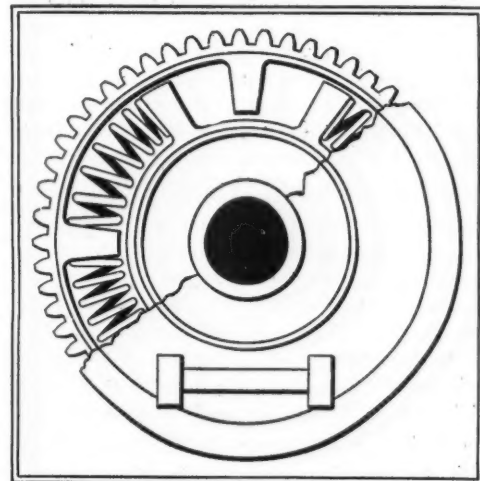
#### AUTOMATIC TIRE INFLATOR

The Dash power pump for tire inflation is manufactured by the Garage Equipment Co., of Milwaukee, and is designed to be operated from the combustion chamber of one cylinder of the motor, the explosion forcing a power

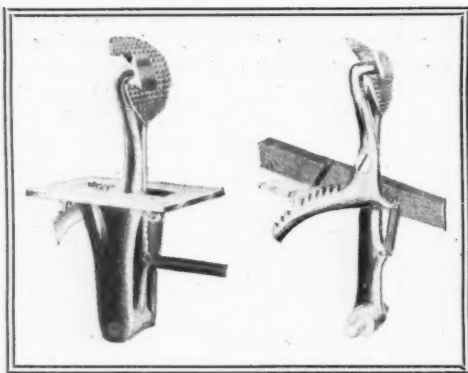
piston on its working stroke and the suction of the motor drawing it back. The casing of the pump is a vertical cylinder, the bottom half of which is 2 3/4 inches in diameter and the top half almost one-half less. Within this casing works two pistons cast in one piece, that reciprocating in the larger part of the casing known as the power piston and that in the smaller part as the working or air piston, and the cylinders, respectively, as the power and air cylinders. Leading into the base of the power cylinder is a pipe with globe valve, the former for connecting with the explosion chamber of the motor and the latter to gradually admit the explosive gases. The air cylinder connects with the outside air through a check valve opening and at the top communicates through a 1-8-inch pipe with the rubber hose running to the tire. In the pipe is a ball valve held against its seating by an adjustable screw, against which presses a helical spring, the other end of the spring resting on a small seat pressing against the ball valve. Both pistons are lubricated by an oil groove covered with a brass collar at the base of the air cylinder, the groove receiving lubricant through small holes leading from an outer oil duct. One filling of the groove with grease is said to be sufficient for several months use. The pump is made of polished brass, is 5 inches long, weighs 2½ pounds and can be carried on the dash of the car.

To inflate a tire the power cylinder is connected with the combustion chamber of the motor by rubber hose, and the air chamber with the valve in the tire. After the motor is started the globe valve is slowly opened, admitting gases beneath the power cylinder with every explosion in the cylinder. These gases drive the power piston upward and with it the air piston, the latter, of course, forcing all the air in the air cylinder through the hose to the tire. After each suction stroke of the cylinder both pistons are drawn down, the gases beneath the power one returning into the motor cylinder and outside air being drawn into the air cylinder. These operations are repeated with every cylinder explosion and suction stroke, and while the exploded gases are used to work the pistons they do not enter the tire, never getting any farther than the power cylinder piston.

This company also manufactures different styles of automatic locking brake pedals, one of the most recent of which is illustrated herewith. The supporting part is a flat steel or brass frame to be fitted into the floor of the



THE FRAYER-MILLER CUSHION GEAR



AUTOMATIC BRAKE PEDAL

car and having on the lower side two downwardly projecting arms to carry the pedal arm, and at the front end of the slot in which the arm works a small lug for engaging the ratchet teeth. The main pedal, some 11 inches long, is pivoted at the bottom by a  $\frac{1}{2}$ -inch steel pin and at its upper end has the usual roughed toe piece. Hinged to this pedal 5 inches from the top is a second pedal carrying at the lower end a ratchet jaw with teeth for engaging the lug on the frame. At the upper end it extends through a slot in the toe piece of the main pedal, normally being 3-4-inch in advance of it. Between this and the main pedal is a spring which normally holds the ratchet teeth in engagement with the lug.

When the foot is pressed on the toe piece the ratchet pedal is pushed back so that its face is not in advance of that of the main pedal, which movement releases the ratchet teeth so that when the pressure of the foot comes against the main pedal it is free to move back or forward without the teeth engaging, but as soon as the driver wishes to lock the pedal the foot is turned slightly to the side, releasing the toe piece of the ratchet pedal and so engaging the ratchet teeth with the lug and holding the toe piece guide in position. The foot may then be removed and the brake remains locked. To release, the foot is pressed on the pedal, first on the ratchet toe piece, releasing the teeth and unlocking the brake.

#### THE ANDERSON JACK

The Anderson automobile jack, a product of W. H. Anderson & Sons, Inc., of Detroit, Mich., is constructed with a central lifting bar with teeth on one side and a spiral worm engaging the teeth on the bar, each revolution of the worm raising the bar one notch. To the worm is attached the lever for working the jack. The same movement of the lever raises or lowers the lifting bar, by moving the pawl ratchets up or down. Attached to the worm is a small hand wheel, to be used for rapidly raising or lowering the bar in order to place the jack beneath the objects to be raised. When lowered the height of the pack is  $11\frac{1}{2}$  inches, and with the bar up  $17\frac{1}{2}$  inches.

#### MOTOR CAR LITERATURE

Automobil-Kalender und Handbuch der Automobil-Industrie, which in translation becomes Automobile Calendar and Handbook for the Automobile Industry, is a pocket size book treating of the construction and operation of all parts of automobiles, commercial wagons and motor boats. The book opens with a series of logarithm tables, followed by formulas for the designing of parts. In sections dealing with transmission gears, carbureters, chains, sprockets, brakes, steering gears and springs,

tables are given by which the correct proportion of these parts with relation to load carried and speed traveled may be had. The descriptive department covers a few of the best known gasoline, steam and electric machines, all mechanical details of which are given. Under a separate department the construction of motor boats is handled, measurements for hull, motor and all other parts being given. There is also a lengthy story on the care of batteries given. The book containing 400 pages, all well illustrated with photographs and line drawings, is printed in German and is published by M. Krayn, of Berlin, Germany.

The Automobile Handbook, by E. W. Roberts, comes as a companion to the Gas-Engine Handbook, now in its sixth edition. The book, a handy pocket volume of 330 pages, contains thirty-four chapters, twenty-four being descriptive of parts of the automobile, such as the motor, clutch, brakes, muffler, frames, wheels, etc., and the remaining ones being devoted to information on the operation and care of motor cars, the testing of engines and the selection of a car. Throughout the book runs a series of fifty-one lettered line drawings showing details of construction. A few of the illustrations covering the four and two-cycle motors, float-feed carbureter and other standard features of the modern car are the same as those used in the Gas-Engine Handbook, but the majority is new. The book also contains tables and formulas on the size and construction of parts that are useful to the designer and builder. The typographical appearance of the book could be improved upon in many places, there being a lack of register and uniformity of ink in several places, and the arrangement of the matter is not the best, but altogether the book is a good addition to motor car literature. The publisher is the Gas Engine Co., of Cincinnati.

The Post & Lester Co., of Hartford, Conn., describes its Royal de Luxe lamps and searchlights in a small catalogue with alternate pages devoted to two-color illustrations of the models. The last pages describe and illustrate the company's generators and the Imperial motor clock.

A Study of the Adams-Farwell Motor Car is the name Adams Co., of Dubuque, Ia., gives its latest catalogue of the Adams car. The twenty-four pages of car description, illustrated with car views and mechanical drawings, sets a new pace in this phase of catalogue making for never before has so detailed and continuous a description of a car been given in catalogue form. The novelty of the Adams motor as well as peculiarities in other parts of the car were described some time ago in MOTOR AGE.

By quoting from two books in the Bible—Isaiah and Peter—is the way the Duryea Power Co., of Reading, Pa., opens its twenty-page booklet filled from title to end with closely printed reasons why buyers should select the Duryea. Not an illustration is used, but the pages contain much more information than is found in most trade literature.

As interesting a five-minute touring story as one would want to read is being distributed in booklet form by the Peerless Motor Car Co., of Cleveland. It tells in its dozen reading pages and dozen full-page illustrations the beauties and fascinations of crossing the mountains in southern Montana in a 24-horsepower Peerless car. F. W. Volger, of Red Rock, Mont., is the hero of the trip and piloted the

car through a 430-mile detour of the mountain roads and passes in a week. At the highest elevation the car was 8,000 feet above the sea level and on soil never before traversed by motor cars. In descending from the height there was a descent of 2,000 feet in three miles, along trails providing a 6-inch margin on each side of the car—rocks on one hand and precipice on the other.

H. F. Borbein & Co., of St. Louis, in a catalogue just issued devote a great deal of space to illustrating with plan and sectional drawings their many models of pressed steel running gears for pleasure and commercial cars. Many designs of runabout and rear and side-entrance bodies are shown, as well as a line of parts and fittings.

If the Pierce cars for next year are not swell in body design and color effects the fault will not rest with the publicity department of the George N. Pierce Co., of Buffalo, who is now offering \$1,000 in three sets of first and second prizes for best designs and color schemes submitted.

The Packard car in most of its popular combinations is shown in the latest addition to the literature issued by the Packard Motor Car Co. of Detroit. This is in the form of an eight-page folder, seven pages of which are devoted to full page illustrations of latest Packard models accompanied by brief description and price list.

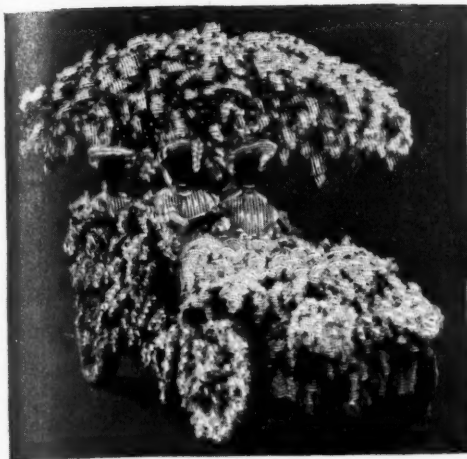
#### TO ASSIST VALVE REMOVAL

Many users of cars have experienced difficulty in removing the key holding the seat of the valve spring in place. Before the key can be removed the valve spring must be compressed and so held until the removal is completed, a task which is trivial when the car is on the garage floor, but which assumes greater proportions when the removal has to be hurriedly made on the road. With the object of facilitating this work Charles Jarrott & Letts, of London, have introduced a simple device. In the valve casing, just in front of the spring a small hook or eye is screwed into the casing, one being used with each valve. To the tool kit is added a short rod with a hook on each end, that on the upper end being hooked into the eye in the casing. A second rod, with a yoke on one end, an eye hole near the yoke and terminating in a long handle at the other end is hooked onto the bottom hook of the rod, the yoke resting beneath the valve spring seat. A slight pressure on the outer end of the handle will compress the valve spring, thus leaving the valve spring key free and easily removable.

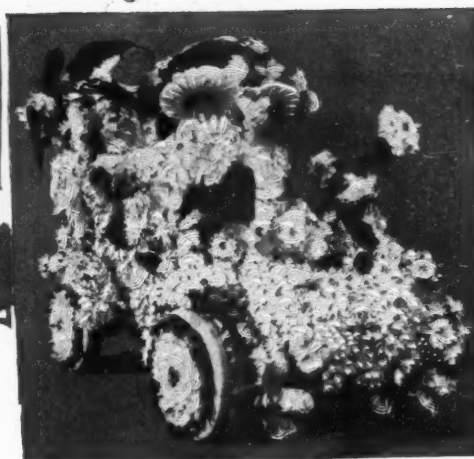


JARROTT'S VALVE LIFTER





FEATURES OF A RECENT AUTOMOBILE PARADE IN MOBILE, ALA.



**Northern Among Royalty**—The Duke and Duchess of Manchester visited Detroit last week and bought a Northern limousine.

**To Buy a Patrol**—The board of public works of Seattle, Wash., is considering the purchase of an automobile patrol wagon and the fire department wishes a motor fire engine.

**A Ton of Ice Cream**—Harry B. Burt, of Youngstown, O., is reported to have placed with the Mahoning Motor Car Co., of Youngstown, O., an order for two cars to be used to carry ice cream. Each is to have a capacity of 1,000 pounds.

**Too Much Demonstration**—A woman of Salt Lake City, Utah, has begun a suit for damages against a van and storage company, claiming that an automobile which she had turned over to the company to be stored and sold had been damaged by being used too much for demonstrating.

**Motor Patrols Profitable**—It is said that since the police department of Los Angeles, Cal., has put into use its automobile patrol wagon the number of arrests has almost doubled, including arrests of automobilists. Thus far fines from motorists have aggregated one-fifth the price of the speedy new patrol.

**Long Steamer Tour**—Paul H. Deming, of the White Sewing Machine Co., of Cleveland, sailed recently for Naples. He has taken his White steamer with him and will tour through Italy, Switzerland, Austria, Hungary and France, where he will witness the Bennett cup race. He will then cross the channel and make a trip through England. He expects to return home about September 1.

**Pioneer Dead**—M. G. Forestier, one of the founders of the Automobile Club of France, died recently in Paris. Since 1897 he was chairman of the technical committee of the club, and was also inspector general of bridges and roads in France, and a member of many scientific associations. Although his name was seldom mentioned in the newspapers he was recognized as one of those who did most to encourage the automobile industry of France.

**Value of Speed**—John Hatstat, a motorist of Hartford, Conn., recently assisted in saving a man's life with the aid of his motor car. While running past Warehouse Point, on the Connecticut river, Hatstat saw a workman on the new railroad bridge fall into the river below. When he fell he carried with him a 20-foot wood straight edge and this had sufficient buoyancy to keep him afloat. Hatstat turned around and ran at a fast clip to a power station a mile below, where a boat was launched and put out to the bridge-

smith's rescue. The mad flood current had carried the bridge worker rapidly down stream.

**Was Not Bluffed**—W. Gould Brokaw, well known as the owner of racing cars, is defending the Selden suit brought against him for the importation of an unlicensed machine.

**Modern Sprinkling in Metropolis**—The electric street sprinkler adapted by the Edward Balf Co., of Hartford, Conn., and pictured in Motor Age last week, is now being demonstrated in New York.

**Quakers To Run Bus Line**—A company headed by Stevenson A. Williams and including quite a number of Philadelphians was incorporated at Belair, Md., last week for the purpose of running a line of motor cars between that place and Havre de Grace.

**Police Asked To "Get Busy"**—At a recent meeting of the townspeople of Bloomington, Minn., resolutions were adopted urging the local authorities to arrest automobilists who drive through the city at a greater rate of speed than the local ordinance permits. The police officers are preparing to make good.

**Motoring City Officials**—City Treasurer Henry R. Shock, of Philadelphia, has just ordered his fourth car since breaking into automobiling. Director of Public Charities Edward Martin is another Quaker City official who constantly uses an automobile in traveling between his suburban home and his office.

**For Car and Boat**—Russell A. Frisbie, of Cromwell, Conn., has completed two six-cylinder motors, one of which has been installed in a large touring car, while the other is about to be dropped into Captain A. Bruce Tooker's new high-speed launch. It is expected that both the car and motor boat will be extremely fast.

**Summer School of Motoring**—A course in automobiles and motor boats will be given at the Clarkson summer school at Potsdam, N. Y., by Professor Willhauff, assisted by William J. Howe. The instruction will consist in laboratory work, lectures and road work. A complete car will be mounted in the laboratory, and the lectures will be illustrated by photographs, models and lantern slides.

**Doubles Its Stable**—The electric trucks, delivery wagons and inspectors' cars owned by the New York Edison Co. aggregate an outlay of \$60,000. Their introduction was difficult, but H. W. Ewbank, manager of the automobile department, feels that his department's showing has been vindicated, as an order for more vehicles to the tune of \$60,000 has been placed with the Electric Vehicle Co.

The Edison company finds a profitable business for the big trucks in the winter season thawing out frozen water pipes.

**Vigilant Assessor**—According to Tax Commissioner Bruce, of Milwaukee, 340 motor cars will be placed on the tax rolls this year.

**Tour of Four Countries**—Colgate Hoyt, an A. C. A. governor, sailed for Antwerp last week for an automobile tour, which will embrace Holland, Belgium, France and Italy.

**Will Be Swell Dinner**—A match race has been arranged between A. L. Riker, of the Locomobile Co. of America, and Eb Hill, of Norwalk, Conn. The race is to be from Norwalk to the Blossom Heath Inn, in Larchmont, Conn., the first to arrive to order a dinner and the other to pay for it.

**Legislators Use Automobiles**—For the first time in the history of the Massachusetts legislature, one of its committees has officially used motor cars in the transaction of its business. Monday of this week the street railway committee started in motor cars on an inspection of two routes leading from Boston to Providence, and on each of which were two parties with franchises to build an electric line.

**Rapid Depreciation**—To buy a new car and have it smashed to pieces before fairly out of the garage for the first trip was the experience last week of A. J. Wells, a Buffalo motorist. Mr. Wells was just getting his new Winton into the street from the Jaynes garage when it was struck by a trolley car and badly wrecked. Mr. Wells escaped without serious injury. He said he did not see the street car until it was upon him.

**Stage Line in Michigan**—An automobile omnibus line is being organized in Stockbridge, Mich., to operate between Chelsea and Mason, a distance of 40 miles, which, it is expected, will be covered in about 4 hours. The first car will be put into operation in May and will have a seating capacity of twelve people. Residents along the route are enthusiastic over the project and have subscribed liberally.

**Garage in House**—The building of private garages is no new thing. James A. Garland, a New York millionaire enthusiast, however, goes a step further with an original innovation which certainly will bring the automobile closer to home than ever. The plans for his new Fifth avenue mansion call for a garage on the ground floor in addition to a billiard room. And why not? A motor car is certainly no house nuisance. Both convenience and economy are regarded by such a house storing.

# CURRENT GOSSIP OF THE GARAGES



GARAGE OF J. J. MANDERY, ROCHESTER

**Garland for the Maxwell**—The Maxwell cars will be handled in St. Paul by R. F. Garland.

**"Pathfinder" Strikes Pittsburg**—The Elmore will be handled in Pittsburg by King & Lairmor, who are located at 6315 Station street.

**Occupies New Home**—Next week the Richmond-Jarvis Co., of Grand Rapids, Mich., will move into its new headquarters at 11 Park street.

**Why Not Ask Metzger?**—F. Harry Hull, of Oshkosh, Wis., says that he has the local agency for the Cadillac. The Krueger Automobile Co. also claims that it has this distinction.

**At All Prices**—John Van Benschoten, 14 Catharine street, Poughkeepsie, N. Y., has the agency for the Autocar, Oldsmobile, Pope-Toledo and Thomas Flyer. He also handles automobile supplies.

**Branch in Milwaukee**—The Githens Bros. Co., of Chicago, agent for the Oldsmobile, has opened an agency at 445 Grove avenue, Milwaukee, in connection with the Huesby Co., and carry machines in stock there.

**In Oysterville**—The Mar Del Mobile Co., of Baltimore, is building a new store and repair shop at 1117 Cathedral street, which, it is said, will be the largest in Baltimore. The company has the agency for the Cadillac, Franklin and Packard.

**Special Store for Electric**—The Cook & Stoddard Co. has leased 1024 Connecticut avenue, adjoining its double garage at 1026-28 Connecticut avenue, Washington, and will devote it to the electric department, the Baker holding forth here. The company is enjoying marked success with the White steamer.

**Has All He Gets**—The manager of the Philadelphia branch of Thomas B. Jeffery & Co., reports that the two carloads of Ramblers received by him the past week completes the allotment allowed the Quaker City branch for the present year. The present season has been a wonder, and will show, it is averred, a 600-per cent increase over 1904.

**Yale Successful**—The Dalsimer Automobile Co., 1615 North Millington street, Philadelphia, is meeting success with the Yale. The Dalsimer people have just erected a new building and are prepared to enter upon a vigorous Yale campaign. Besides a well-equipped repair shop and handsomely fitted up salesroom, there are three entire floors for storage purposes. A large electric elevator running to all floors makes easy the handling of cars. An electric charging plant is also included in the outfit.

**Big as a Factory**—A scheme to establish one of the largest salesrooms and garages in the country has been launched by the Jordan estate in Boston. At the head of this estate is Eben D. Jordan, of the Jordan-Marsh Co., the largest dry goods concern in the Hub. It is proposed to erect a two-story building on a plot of land which faces on five streets at Park square. The building will have a floor space of 94,736 square feet and will be divided into twenty-one different establishments, all to be used as salesrooms or garages. The structure is to be of concrete steel and will be fireproof. The windows will be many and of plate glass. Storage facilities for 400 cars are to be provided, and also repair shops with machinery enabling repairs to be made to any make of car. The

salesrooms are to be fitted up in simple but artistic style.

**Two from Michigan**—Don C. McCord, of Oakland, Cal., has taken the agency for Buick and Cadillac cars.

**Broadway Quartette**—Charles Frellson has opened a garage at 501 Broadway, Milwaukee. This is the fourth garage to be opened on that street.

**Rambler State Agent**—The agency for the state of New Jersey for Rambler cars has been secured by the Rambler Motor Car Co., Halsey and Crawford streets, Newark.

**Omaha a Rambler Town**—During the month of March the Rambler Automobile Co., of Omaha, Neb., received seven car loads of Ramblers, and expect larger shipments during April.

**Its Own Agent**—The Dayton Motor Car Co., of Dayton, O., manufacturer of the Stoddard-Dayton, has decided in the future to handle its local trade from the factory, where local repair work will also be done.

**Not Enough Stoddard-Daytons**—Stoddard-Daytons are going fast in Chicago, the McDuffie Automobile Co. having disposed of a shipment of eight cars received this week before the shipment was received, and still running short on orders.

**Northern in Syracuse**—W. R. Topp has opened a garage at 310 Harrison street, Syracuse. He has an electric charging station and all the necessary equipment for repairing and storing. He also has the agency for the Northern. The location is good. Mr. Topp has had experience in other garages in the city.

**Worcester's Big Row**—The leading agents in Worcester, Mass., are Robinson's Auto Station, Pleasant street, which has the agency for the Cadillac, Franklin, Locomobile, Orient, Napier, Peerless and Pope-Waverley; the Worcester Automobile Co., 84 Exchange street, which handles the Elmore; the Palace Auto Station, 673 Main street, which is agent for the Rambler; the Norcross-Shiland Co., 214 Summer street, which has the Autocar, Buick and Pope-Toledo; Harrington's Auto Station, 31 Canal street, which handles the Thomas Flyer, and the White City, which is agent for the White steamer.

**Jolting the Ride Graft**—The free ride grafter in Washington is being jolted nowadays. A Motor AGE man was in an uptown garage the other day when a pompous personage with a predominant jowl stepped into the garage with the assurance born of an unlimited bank account.

"Ah," he murmured, "just what I have been seeking—an American-built car of power and stability."

"Yes, sir," said the eager salesman, scenting a big sale; "our car is daily winning new laurels."

"So I understand," replied the pompous one, "and only \$3,500, with a guarantee, eh? Well, I am the sort of a man who makes up his mind quickly and acts on it. Certainly the machine is cheap at the price, if it lives up to what is claimed for it. But that's the question, sir, that's the question."

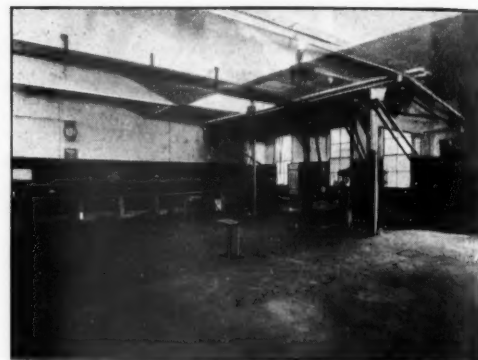
"We are always glad to prove the fine qualities of the car," put in the salesman.

"Good. Now, before I close a deal with you, I would like to take a test trip to bring out these qualities."

"Certainly, sir; certainly."

"Now I must take my wife along to prove to her the safety of the automobile. Fortunately, she is outside talking with a party of friends who are just about to attend a reception in the suburbs. Of course, you have no objection to the party being my guests on the trip out there?"

"Not at all, sir, providing you deposit \$25 for the expenses of the chauffeur, wear and



REPAIR SHOP OF MANDERY GARAGE

tear on the machine, and so on. Of course, it is a mere formality. The money will be refunded to you after the sale."

At this point the pompous personage grew very red in the face.

"Let me see; er—er, I'm not particularly pleased with your make of machine, anyhow," he said, "and I am going down the street to another salesroom where they extend courtesies to possible purchasers."

"Then, good day," responded the salesman, as he winked at the Motor AGE man.

**Cadillacs on Coast**—Cuyler Lee, agent for the Cadillac in San Francisco, received thirty-four of these cars during the first 2 weeks of April, and expects twenty-four more during this week.

**Quiet Car for Quiet Quakers**—The Grout steamer is the latest addition to Philadelphia's rapidly-growing automobile family. The Grout is being handled there by L. I. Matthews, with offices at 1015 Harrison building.

**First in Washington**—The National Automobile Co., of Washington, has just received a big shipment of Racine motor boats, the first ever brought into Washington. Manager Wood thinks Washington is an inviting field for motor boats and it is his intention to push this branch of the business for all it is worth.

**Western Trade Great**—"With the return of fine weather trade is away beyond all expectations. The demand for high-priced cars was never so great as at present and in spite of from one to three shipments of cars each week from the factory the supply is almost sold out. The increased demand in smaller western cities for these cars indicates what the general demand for automobiles must be. We have established twelve new agencies for cars throughout western cities, in all of which the demand is great." Thus speaketh B. G. Sykes, manager of Chicago branch of the Locomobile Co. of America.

**Los Angeles Changes**—Within the last few months there have been many changes in the automobile trade colony of Los Angeles, Cal. Some dealers retired, some have traded agencies, some have taken on additional lines and some are newcomers. Almost every car of reputation in America can be bought in Los Angeles. Harry Olive and J. M. Pawley have started a garage at 735 South Broadway and have taken the agency for the Peerless and are also engaged in repair work. Another new garage is that of Bush & Birge, at Seventh and Main streets, in the building formerly occupied by the Autocar agency. In the same building is located the branch store of the George N. Pierce Co. and the southern California branch of the George P. Moore Co., of San Francisco. Cuyler Lee, the San Francisco dealer, has opened a branch at 1032 South Main street. It is in charge of his brother, D. M. Lee. Buick cars are handled exclusively. Under the name of the Franklin Motor Car Co. of Los Angeles, R. C. Hamlin has opened a store at 1806 South Main street, handling the Franklin. The Elmore and Haynes-Apperson are sold by J. A. Rosesteel, whose garage is at 649 South Broadway. The Worthington Garage, at Fourth and Los Angeles streets, handles the Cleveland. The Auto Renting and Repair Co., which started business at Ninth and Los Angeles streets about 3 months ago, has given up the venture. It was a corpo-





ration promoted by local real estate men, while the active workers were the Richey brothers. The real estate men were disappointed in the immediate returns and decided to retire.

**Compound in Hartford**—Compound cars, made by the Eisenhuth Horseless Vehicle Co., of Middletown, Conn., will be handled in Hartford, Conn., by the Automobile Exchange, which has its garage at 1100 Main street.

**Buick and Pope Line**—Last Monday the New Haven Automobile Corporation, of New Haven, Conn., moved into new salesrooms at 53 Broadway. The company handles the Buick, Pope-Toledo, Pope-Hartford, Pope-Tribune and Pope-Waverley.

**Seventy-five for Wichita**—The Wichita Automobile Co., of Wichita, Kan., reports a rushing business, and according to Manager Schollenberg the company expects to sell from fifty to seventy-five cars this year. Last week four cars were sold in 3 days.

**Want More Big Carts**—C. F. Wyckoff and E. S. Partridge, president and vice-president of the Standard Automobile Co. of New York, sailed for Europe last week to arrange for larger shipments of high powered Decauville cars, the demand having broadened in that direction. They will be absent 4 weeks.

**Big Garage for Pottsville**—The Pottsville Automobile and Garage Co. is being organized in Pottsville, Pa., and there is being erected a garage 60 by 112 feet, and which will be either five or six stories high. The company will handle several lines of cars, besides engaging in storage, renting and repairing.

**Early Boat Demonstration**—The Holmes-Schmidt Motor Co., distributor for the Ford and Welch cars, and who handles the power boats built by the Western Launch & Engine Co., placed a demonstrating boat in commission on Lake Michigan. It is daily making trips in spite of the chilly weather of the last week.

**Importers' Big Garage**—Upper Broadway, New York, is to have another big garage. The Auto Import Co., importer of the Rochet-Schneider, has bought a lot at the northwest corner of Fifty-seventh street and will begin on May 1 the erection of a six-story fireproof building with a frontage of 54 feet on Broadway and 110 feet on Fifty-seventh street. The entire Broadway frontage of the ground floor is to be devoted to a salesroom for Rochet-Schneider touring cars, while a large supply department and entrances to the storage and repair departments will be on the street front. On the upper floors will be waiting rooms for customers and chauffeurs, locker rooms, booths and storage accommodations for about 200 machines. The land



and building will represent an outlay of a half-million dollars. Occupancy is expected in 4 months.

**Speedy Manager**—Edward Hawley, former driver and mechanic of the E. R. Thomas racing stable, is now manager of the Outing Garage in Brooklyn.

**Village Blacksmith Up to Date**—Ray Collins has become the owner of the blacksmith shop of O. B. Underhill, in Northfield, Minn., and will turn it into a garage and repair shop.

**First in Victoria**—The first automobile depot combined with a garage and repair shop to be established in the Canadian west has just been opened in Victoria, B. C. Already the plant has all it can handle in the way of orders while the crew in the repair shop is working overtime. The proprietors of this much needed institution are Robert and D. C. Hutchinson, both engineers, who have made a specialty of gasoline motors. Robert Hutchinson has been on the coast for some time, part of which was spent in Los Angeles, Cal., where motor cars are as thick as the common or garden variety of express wagons. Early this spring he became impressed with the excellent opening which existed in Victoria for an automobile manufacturing plant on a small scale, combined with a garage. This latter accommodation was particularly needed, as many who own machines in Victoria had no suitable place in which to store them. He accordingly induced his brother, who until last February was an engineer on the R. M. S. Empress of China, of the Canadian Pacific Steamship line, to leave the seafaring life and engage in transportation questions ashore. The new firm, which is to be known as Hutchinson Bros., has ordered a number of touring cars for livery purposes. As Victoria is one of the most popular tourist resorts on the Canadian side of the line on the Pacific coast these cars promise to be kept busy during the coming summer, especially when the many beautiful roads through Beacon Hill park and a host of enjoyable short scenic tours are available in the immediate vicinity of the city. Hutchinson Bros. have also designed a runabout which is expected to prove popular with motorists in that section. The machine is to be equipped with an 8-horsepower two-cylinder engine. A three-speed transmission gear is to be used, and as the machine is only intended to

carry two passengers it is expected that the engine will develop ample power to easily surmount the many steep grades which abound in the picturesque roads of Vancouver Island.

**All the Popes**—A new garage was recently opened in Rochester by the Robert Thompson Co. at 256 Court street. The company handles the Pope-Toledo, Pope-Hartford, Pope-Tribune and Pope-Waverley.

**Another for Beertown**—A garage will be built on Fifth street, north of Grand avenue, Milwaukee, for Hugo Koeffler. The building will be 30 by 150 feet and one story high, with the basement fitted for a repair shop.

**Knox Branch at Home**—On account of increasing local business the Knox Automobile Co., of Springfield, has opened a retail branch at 484 Main street, that city. Previously the home trade was handled directly from the factory.

**Bicycles and Cars**—The F. W. Mullenhour Mfg. Co., of Lima, O., now occupies a two-story building 40 by 75 feet at 132 North Union street. The company stores and repairs motor cars, motor cycles and bicycles and carries a full line of supplies.

**New Wanamaker Department**—John Wanamaker has set apart 4,000 square feet in his new store at Broadway and Ninth street, New York, for the display and sale of Ford and Premier cars. This is in addition to the establishment of the upper Broadway branch noted in MOTOR AGE last week.

**New S. & M. Headquarters**—Smith & Mabley, of New York, are to move their headquarters to a garage to be built for them in the upper Broadway district. The building, whose completion is expected by September 1, will have frontages on the west side of Broadway and the north side of Fifty-sixth street. The Broadway frontage will be of 106 feet and the street frontage of 80 feet, with the greatest depth from Broadway 170 feet and from Fifty-sixth street 100 feet. The Broadway elevation will be three stories above the basement and the street elevation will be four stories. In all there will be a total floor space of 76,250 square feet and storage capacity for 450 automobiles. The cost of the building will be about \$250,000. Stone and brick principally will be used in construction. The assembling department for S. & M. Simplex cars will be located on the top floor of the Fifty-sixth street section and the repair department will be in the same section. The new building will be the headquarters in this country for Mercedes, Panhard and Renault automobiles, and also for the S. & M. Simplex, an American car modeled on foreign lines.

## RECENT INCORPORATIONS

Chicago, Ill.—Acme Automobile Co., capital \$30,000; to deal in motor cars. Incorporators, George N. Lyman, William R. Keene and Frank H. Lyman.

Brooklyn, N. Y.—Union League Automobile Co., capital \$50,000; to build and handle motor cars. Incorporators, Charles E. Togethoff, Raine Ewell and H. Milton Kennedy.

New York, N. Y.—Wayne Automobile Co. of New York, capital \$25,000; to handle automobiles. Incorporators, A. L. Kuhl, H. A. Lehman and D. B. Nally.

New York, N. Y.—New York Motor Car Co., capital \$25,000; to make motor cars. Incorporators, A. L. McMurty, H. W. Pratt and G. Lamberty.

Detroit, Mich.—Seldler-Miner Automobile Co., capital \$10,000, of which \$1,500 has been paid in cash. Incorporators, Benjamin F. Seldler, Frank J. Miner and James H. Livsey.

Hackensack, N. J.—North Jersey Automobile & Engineering Co., capital \$5,000. Incorporators, N. Demerest Campbell, Luther A. Campbell and George W. Conklin, Jr.

Cincinnati, O.—Electric Speed Motor Co., capital \$30,000; to build motors. Incorporators, W. H. Whetstone, Martin J. Hester, J. C. Short, R. C. Anderson and J. M. Hutton.

New York, N. Y.—Touring & Observation Co., capital \$50,000. Incorporators, James J. Croghan, Leo K. Schnipff and Augustus F. Mack.



BATTERY ROOM OF MANDERY GARAGE

New York, N. Y.—Tallman Motor Car Co., capital \$30,000; to build motor cars and motors. Incorporators, John A. Tallman, Leonard M. Fessler and Walter F. Sherwood.

Buffalo, N. Y.—Commonwealth Motor Machine Co., capital \$200,000. Incorporators, Charles F. Benzing, Charles F. Burkhart and M. A. Benzing.

Cleveland, O.—Automobile Power and Appliance Co., capital \$25,000; to make parts and appurtenances for motor cars. Incorporators, E. L. Russell, C. E. Thompson, J. A. Krider and A. L. Bond.

Rumford Falls, Me.—French Automobile Co., capital \$100,000; to handle automobiles. Incorporators, W. S. Smith and J. A. Nile.

New York, N. Y.—New Amsterdam Motor Transportation Co., capital \$150,000. Directors, Frederick Tench, F. M. Tench and Joseph Troxell.

New York, N. Y.—Bronx Automobile Co., capital \$25,000; to manufacture motor cars. Incorporators, Herbert E. Van Hofne, George L. Whitney and Donald C. Roberts.

New York, N. Y.—Rajah Auto Supply Co., capital \$75,000; to manufacture motors. Incorporators, David B. Mills, John C. Travis and Frank A. Cox.

Pennington, N. J.—Inter-City Automobile Speedway Co., capital \$125,000. Incorporators, John A. Kimkel, Wilson D. Hunt, Asa Goddard and Emerson Brooks.

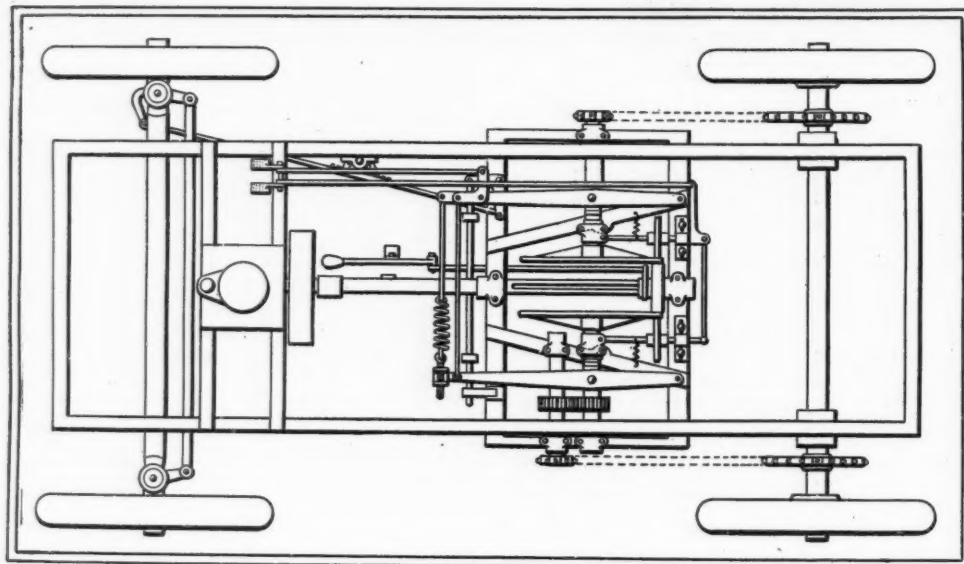
Hanover, Pa.—Hanover Automobile Co., capital \$10,000. Incorporators, Charles H. Heindel, F. E. Heindel and W. F. Kintzing.

Brooklyn, N. Y.—Sea Gate Stable and Garage Co., capital \$3,000. Incorporators, J. A. McGee, H. W. Rabe and E. F. S. Clegg.

Marion, Ind.—H. F. Reynolds Electric Co., capital \$20,000; to manufacture electrical appliances. Incorporators, Harry F. Reynolds, Louise Reynolds, Roy R. Gruwell and B. F. Burk.

Belair, Md.—The Automobile Co., of Hartford County, capital \$25,000; to operate an automobile passenger and merchandise line.

## CURRENT AUTOMOBILE PATENTS



MCKAIG'S SYSTEM OF FRICTION DRIVE

Letters patent No. 787,096, dated April 11; to Stephen H. Hanson, of Akron, O.—In a four-wheel drive intended for motor cars for commercial purposes the inventor uses a pivotal front axle, the same as used in horse-drawn vehicles and steers through a vertical column carrying at the bottom a small gear meshing with a larger one centrally placed on the front axle. On the center of the front axle is a gear with teeth having convex faces. Meshing with this gear is a sliding one with concave faced teeth, this gear being slidable on a transverse shaft in a gear case and capable of separable engagement. In the center of the vehicle frame is a transverse shaft driven from the motor and carrying near each end a sprocket in connection with a disk clutch. From these sprockets chains drive to gear cases on the front and rear axle, the gears in each being under the same control.

Letters patent No. 786,916, dated April 11; to Eddy T. McKaig, of Chicago, Ill.—For friction drive in an automobile the motor is placed vertically in the front of the car and drives through a rearward prolongation of the crank shaft carrying a small friction wheel splined on it. On either sides of the friction wheel are large opposed metal disks on shafts that can be moved longitudinally so that the disks may be moved to and from the friction wheel by a lever movement. One disk shaft drives direct through chain to one rear wheel and the other is geared to a short counter shaft and then drives by chain to the other road wheel, the use of this counter shaft for drive to one road being to secure motion in the same direction. In connection with the steering gear is an arrangement whereby when

the steering wheels are turned to a certain angle toward one side, the disk at the opposite side is thrown out of engagement so that only one road wheel drives when turning corners. Behind the disks are idlers movable with the disks and intended to support the outer edges of the disks in firm contact with the friction wheel when driving.

Letters patent No. 787,031, dated April 11; to Leonce Girardot, of Puteaux, France—This invention is a friction clutch with two springs, one for holding the clutch in engagement and a smaller one to disengage it. Engagement and disengagement are facilitated by ball bearings between the prolonged axle of the fly wheel, which acts as a bearing for the sleeve carrying the male part of the clutch. The fly wheel is bolted to the engine shaft and acts as the female part of the clutch, the male part being carried on a sleeve with bearings on the fly wheel hub and being connected with the gear shaft through teeth having a limited amount of play. The engaging spring surrounds the gear shaft, pressing against a collar on it and also against a collar on the sleeve carrying the male part. The spring for disengagement is contained within the fly wheel hub, bearing at one end against the sleeve carrying the male part, and at the other end against a ball bearing ring acting on the end of the crank shaft. The usual pedal arrangements are used for operation.

Letters patent No. 787,212, dated April 11; to James W. Packard, of Warren, O.—This invention is a governor device for automatically advancing or retarding the spark according to the speed of the engine. On a rotating shaft is a sleeve

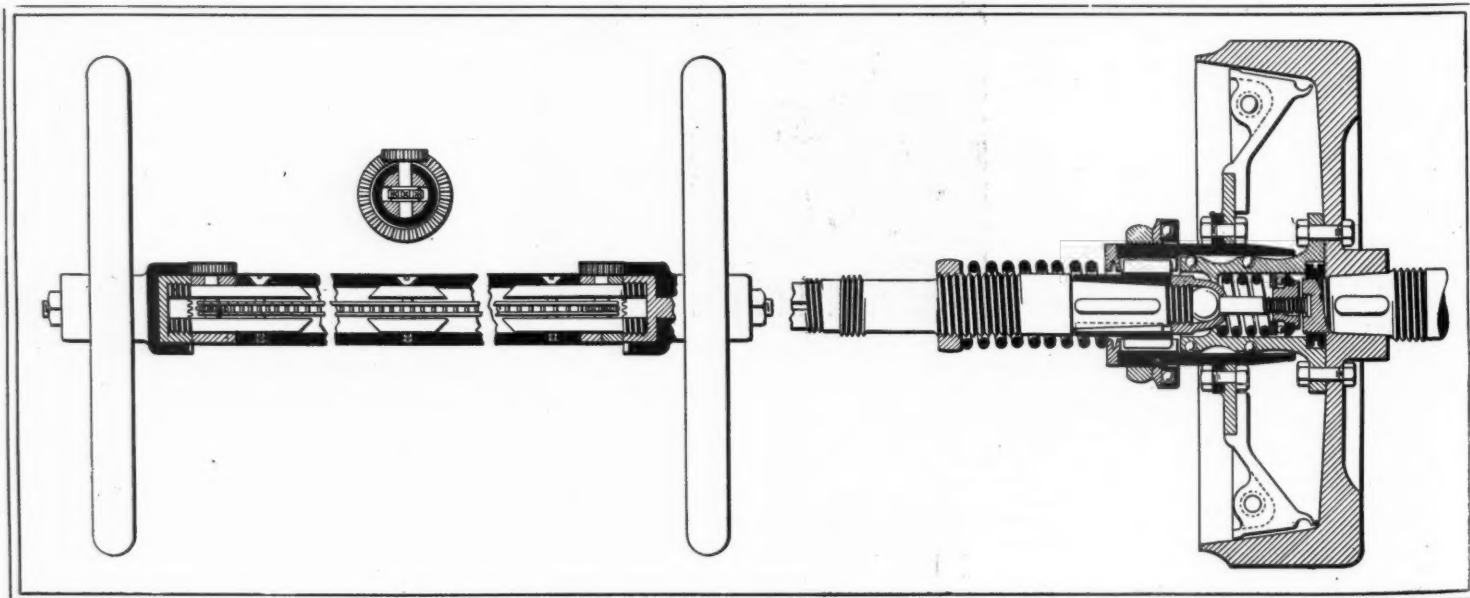
under governor control, the sleeve carrying a tapered contact cam which meets a contact point placed in the path of the cam. The contact point is supported by a spring and in rear of the cam is insulating material. According to the movement of the sleeve the contact between the cam and the contact point is effected.

Letters patent No. 787,085, dated April 11; to Elbridge C. Doolittle, of Wallingford, Conn.—In this device, which is a compensating gear for rear axles of automobiles, is a central core with longitudinal grooves along the opposite sides and with its ends cylindrical in shape, each carrying a transverse stub shaft with small rotatable gears on the end. On these stub shafts, midway between the gears, are sprockets over which passes an endless chain occupying the grooves in the core. Screwed to the ends of this core are spindles on which the road wheels are rotably mounted, and on the inside of the hub of each road wheel is a crown gear that meshes with the small gears on the stub shaft. The core can be driven from the gear case or motor of the car by single or double chain or shaft. With the car traveling straight the core and road wheels revolve as a unit, the chain on the stub shaft sprockets and the stub shaft gears remaining at rest on their own axis. So soon as one road wheel travels faster than the other the stub shaft gears commence compensating, the chain serving to connect them.

Letters patent No. 787,254, dated April 11; to David B. Young, of Culver, Ind.—In this rotary carbureter is a cylindrical shell with a stationary axis through the diameter of it. Rotably mounted on this shaft are several wheels constructed of blades and annular rims. The blades in alternate wheels are set in opposite directions to the plane of rotation of the wheel. In either ends of the cylinder are wheels equal in diameter to that of the cylinder and containing a great many small apertures. The rapid rotation of the wheels caused by engine suction mixes the gasoline and air.

Letters patent No. 787,155, dated April 11; to Edward Denegre, of Chicago, Ill.—In his force feed oiler the inventor uses a reservoir and two eccentrically driven plunger pumps for forcing the oil through sight feeds and to the bearings. The primary pump is not of so great capacity as the delivery one and has a connection leading from its discharge to the inlet of the delivery pump, part of which connection is the sight feed. Arrangements are made whereby one pump may be used to clean the other.

Letters patent No. 787,807, dated April 11; to Norman T. Harrington, of Detroit, Mich. In a brake for automobiles is used a rotary drum on which are tightened two oppositely placed segmental channel steel shoes. These shoes are pivotally attached at one end and at the other is a toggle joint device for tightening. The toggle joint consists of the lever pivoted to one shoe and an adjustable link connecting the lever to the other shoe, a pin forming the pivotal connection for the lever. A spring is used to release the segments from the drum.



DOOLITTLE'S CHAIN DIFFERENTIAL

GIRARDOT'S CONICAL CLUTCH



# AMERICAN MOTOR LEAGUE

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National Headquarters  
Vanderbilt Building New York

## OFFICIAL BULLETIN

## THIS LEAGUE

### Is Now Collecting Route Information

covering all automobile routes in the important states and will publish road books for motor car users as fast as complete information is received. The A. M. L. is the only organization engaged in this work, and it invites the co-operation of all persons interested. For full information and membership blanks address American Motor League, Vanderbilt Building, New York City.

## ROUTE DESCRIPTIONS

To H. B. Webber, of Ionia, Mich., the league is indebted for a very clearly drawn sketch of a route across the state from Detroit to Grand Haven, via Sandhill, Farmington, Novi, New Hudson, Kensington, Brighton, Howell, Fowlerville, Webberville, Williamston, Okemos, Agricultural College, Lansing, Eagle, Portland, Ionia, Saranac, Lowell, Ada, Grand Rapids, Lamont, Dennison, Springlake and Grand Haven; total distance, 196½ miles. The sketch sent by Mr. Webber indicates important hills and valleys on the route; also buildings at turns in the road and speed ordinances of the different important towns. The nature of the roads between towns is described, and directions for entering and leaving the largest towns, naming streets of entrance and exit, are given. The work done by Mr. Webber is a model of clearness, and is an important contribution to our Michigan data.

Route descriptions have also been received as follows: C. W. Fowler Co., of Pueblo, Col., sends sketch and description and route from Pueblo to Denver, Colorado, 120 miles; from Pueblo to La Junta, 60 miles; from Pueblo to Canon City, 48 miles; from Emory L. Kelsey, of Portland, Me., route descriptions have been received covering the run from Portland to Augusta, via Brunswick, Richmond and Gardner; and from Portland to Rangeley lakes, via Auburn, South Paris and Bryants Pond; total distance 116½ miles. This route is said to afford most beautiful scenery but, as Mr. Kelsey writes, "unfortunately the best roads and the best scenery are not found in the same place." From Mr. Charles B. Kennedy, of Madison, S. D., information has been received covering the road from Sioux Falls to Aberdeen and from Chamberlain to Pierre. Mr. Kennedy is preparing route descriptions covering about 1,200 miles of roads in South Dakota, and extending across the Missouri River. The following additions have been made to the road book committees of the states named: Georgia committee, C. H. Johnson, Atlanta; Illinois committee, Charles R. Lyon, Waukegan; Iowa committee, Fred L. Northey, Waterloo, and D. W. Hartman, Dubuque; Louisiana committee, George Tinker, New Orleans; Minnesota committee, H. S. Youmans, Winona; Michigan committee, H. B. Webber, Ionia; Ohio committee, Walter O. Diver, Prairie Depot.

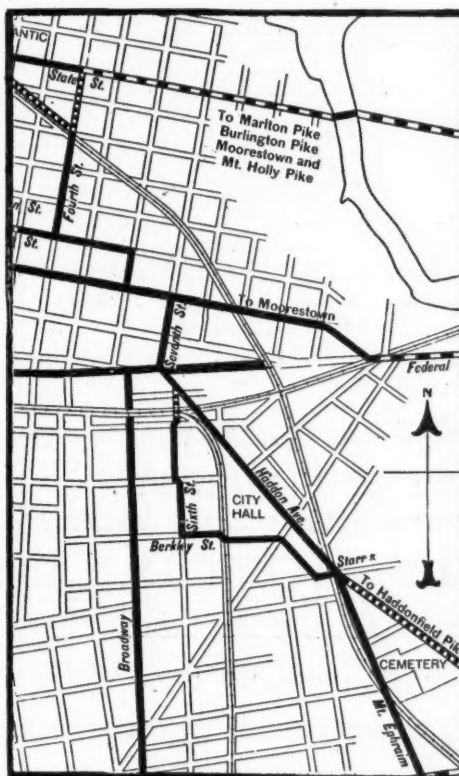
## GUIDE BOARDS

The league wishes to arrange with a good sign painter located at a central point in each of the middle western states, for the furnishing of A. M. L. official guide boards in those states. A reliable and responsible man is wanted in every case—one who can be depended upon to receive orders and fill them in a faithful, prompt and intelligent way. When these men have been found and agreements closed, the work of putting up guide boards will be pushed vigorously. Circular letters will be sent to automobilists and to all town and county officials urging upon them the need of these guide boards, pointing out the provisions of the different state laws, and prescribing how, where and by whom the boards shall be put up. At the same time all league consuls will be urged to take active steps in the matter by locating all places in their home counties where guide boards are needed and prescribing the words and figures which are to be put on each. With

a skillful and reliable man in each state it will be easy to supply these guide boards and to ship them at points within the state borders at low cost and with little delay. It has been found that in sending these sign boards from the state of New York to distant points annoying delays in transit and increased freight rates were to be reckoned upon. The league will furnish specifications, patterns and stencils for the making of guide boards and danger signs will be sent from headquarters to any consul or other league member who will actively take up this work and aid in pushing it along.

## TO CORRESPONDENTS

Every week the secretary receives letters from people who are otherwise the best fellows in the world, but who fail to give their addresses. Sometimes the address is only partially given. For example; a letter comes from "Perry, Franklin County," no state being named, and post mark on the envelope not clear enough to read. There are twenty odd places named Perry in the United States and any number of states have named counties after the illustrious Franklin. The official Postal Guide sometimes solves the difficulty, but not always. A little more care on the part of each correspondent will save a lot of trouble and perhaps a good deal of delay at headquarters.



SPECIMEN ROUTE MAP INDICATING WAYS OUT OF A CITY—THE LEAGUE WANTS ALL SUCH SKETCH MAPS IT CAN GET

## DES MOINES REFORMED

Some years ago an enthusiastic good roads man waded out from Des Moines and made a photograph showing the pasty depths through which the good people of that city went to and fro in their suburban drives. That photograph was published about a million times, more or less, and it proved a silent and successful preacher. Des Moines has reformed, as the following letter from the secretary of the Des Moines Commercial Exchange will bear evidence:

"American Motor League—Gentlemen—One of your good Des Moines members has sent to this office a copy of a sixteen-page folder descriptive of the object of your organization. Allow me to congratulate you on the character and make-up of this folder. It is full of information, tersely prepared, and is interesting even to a layman like myself.

"Referring once more to the folder, permit me, in an absolutely friendly spirit, to say that the 'good roads' picture on page seven, under the caption 'Road Improvement,' is a pretty 'bad ad' for Des Moines, and is making some of your warm friends here feel quite distressed. The writer has lived in, or near Des Moines for 34 years and comes pretty near knowing how bad our roads used to be. I also know that the objectionable cut referred to is an accurate reproduction from a photograph taken by the commercial exchange. Indeed, we have some copies of this identical picture still on hand. We used them at the time in a certain good roads movement, and found them effective. The road in question led out of the city toward the south along the bank of the Des Moines river. As stated, the photograph served the purpose well, but this particular road is now a good, well macadamized, healthy thoroughfare. But here is where the injustice comes in. The photograph was taken over 20 years ago. It is ancient, antiquated, passe. It does Des Moines of today injury.

"We plead guilty of being part of the 'wild and woolly' west. Indeed, we are rather proud to be so included, but we are giving so much attention to bettering our thoroughfares that we think you should, in justice to these efforts, encourage us by suppressing any further use of this untruthful, unfair, caricature. If we may believe our city clerk, Des Moines has 104 miles of paving.

"Have I said enough? Will you be good now and quit? I'll tell you what I would like to have you do to repair the damages done the fair fame of Des Moines. It is this—make a cut from a photograph of one of Des Moines' most handsome asphalt paved streets, and use it instead. What do you say?—MILO WARD, Secretary."

The secretary has written to Mr. Ward, promising on behalf of the league that Des Moines will hereafter be treated with more tender consideration and the offending picture will be put upon the shelf among the pensioned veterans.

## APPOINTMENTS

The following named members have been added to the list of official consuls:

George P. Jones, Findlay, O.; Fred L. Northey, Waterloo, Ia.; D. W. Hartman, Dubuque, Ia.; J. B. Sutter, Burlington, Ia.; F. C. Needham, Decatur, Ill.; Richard P. Elliott, Boston, Mass.; Charles R. Lyon, Waukegan, Ill.

# WINTON



## NONE ITS EQUAL.

ONCE a motorist has enjoyed the use of a WINTON, he is seldom, if ever, satisfied with any other make. There are so many WINTON features—Serviceability, Easy Control, Strength, etc., etc.,—having no counterpart in other cars, that when an owner departs from the WINTON, he discovers, sooner or later, the mistake he has made and returns joyfully to the WINTON fold.

Dr. Frank W. Brandow, of Pittsfield, Mass., writes:—

"I want you to know I have come back into the WINTON line once more. After using two WINTON cars, I switched off for a year on another make—a mighty good car it was, too. But it was not a WINTON, after all. Now this spring I am out with a new Model C, and to say I am pleased with it is drawing it very mild. I am delighted with it. I cannot understand how you can sell this machine for \$1800. I consider it worth \$3000, and I would not take a great deal more than this for it if I could not get another. You certainly have the handsomest machine on the market, and, as I said before, I want you to know I am back in the WINTON line."

Five models—\$1800 to \$4500—16-20 to 40-50 h. p.  
Catalogue No. 2 tells all about them.

**THE WINTON MOTOR CARRIAGE CO.**  
**CLEVELAND,** Member Association Licensed Automobile Manuf'rs **OHIO, U. S. A.**

Branches in Chicago, New York, Boston, Philadelphia and London. Sales Agencies Everywhere



# FIAT



## Our Stock of Duplicate Parts

is larger and more complete than that carried by dealers in Cars of domestic manufacture. We can furnish, *on demand*, a duplicate of any part in case of accident. The above illustration shows just a corner of our stock room, which will give some idea of the enormous stock we always carry on hand. :: :: Send for new catalogue.

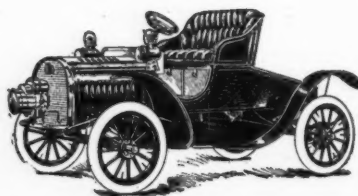
## HOLLANDER & TANGEMAN

3 and 5 W. 45th Street, New York

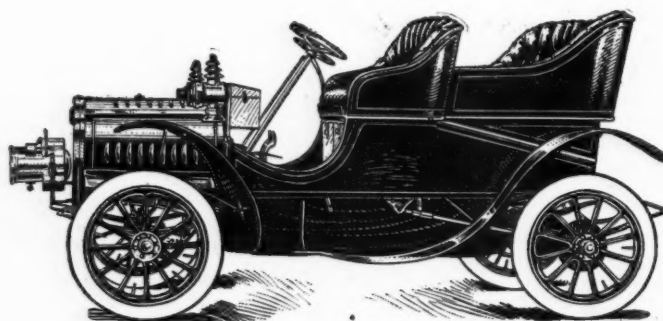
*Sole American Agents*

*Licensed Importers under Selden Patent*

# Rambler



The demand for a powerful, convertible runabout is now fully satisfied by our 16-18 horsepower Model K-2. Except for the body it is the same as Surrey, Type One, which has been so popular during nearly six months use this season in the West and South. To detach the tonneau one has but to remove four bolts.



The operation is by one lever, pedals and a throttle attached to the steering wheel. **The hand that steers is the hand that controls.** Ignition is automatic. The working parts are readily accessible, and so simple that adjustments can be made without the help of a mechanic. The success of our latest models is due to the improvement of the very types that gave satisfaction in previous seasons. A purchaser gets known values.

\$1,250 complete with brass side, tail and gas headlight, brass horn, drop forged wrenches, oilers, pump and repair kit.

Other models \$750, \$850, \$1,350, \$2,000, \$3,000.

Main Office and Factory - - - - - Kenosha, Wisconsin

BRANCHES { Philadelphia, 242 North Broad Street  
Boston, 145 Columbus Avenue  
Chicago, 302-304 Wabash Avenue

New York Agency, 134 West Thirty-eighth Street

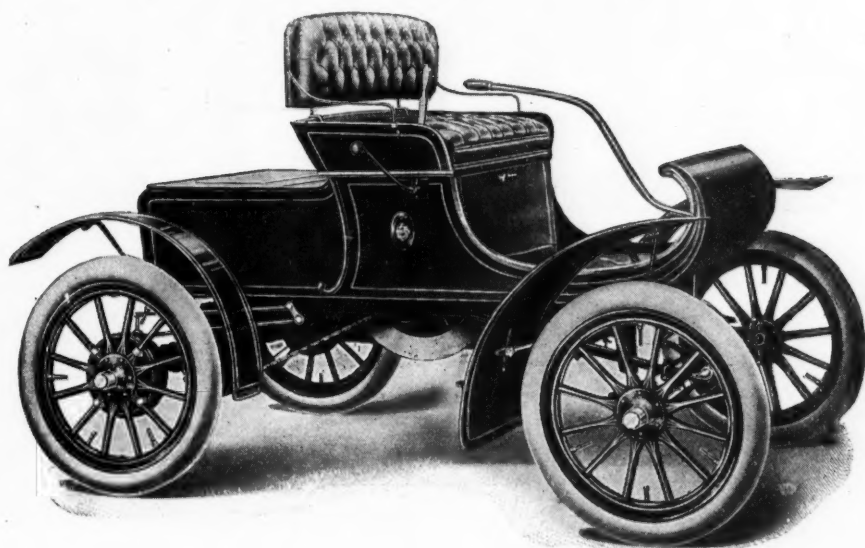
Representatives in other leading cities

## THOMAS B. JEFFERY & COMPANY



# OLDSMOBILE

PRICE

\$650.<sup>00</sup>

## The Best Thing on Wheels

Have you ever stopped to consider why the Oldsmobile is always doing something to cause special comment—something just a little better than any other car has ever accomplished? You know it's a fact—and a significant fact. The Oldsmobile has got the *do* in it, and it's bound to come out. To keep the Oldsmobile from coming to the front is like trying to hold a cork under water.

It was the first Runabout to cross the American continent under its own power. It has set the pace as a hill climber and as a winner of endurance runs. It was the only American car to participate in the recent Bombay-Delhi trials in India. The only light car awarded a Gold Medal at the St. Louis Exposition, etc., etc.

The reason—more experience back of its builders—more quality in the material used—more complete system in the “standardization” of parts.

Send for Catalogue 52 showing our full line of cars.



## Olds Motor Works

Detroit, U. S. A.



Member of the Association of Licensed Automobile Manufacturers

# THE ROYAL TOURIST

"True Blue"



32-38 H. P.

GUARANTEED

2650 LBS.

## \$4,000

Direct Flexible Shaft Drive—Free Driving Axle—Perfect Throttle Control  
—Without Mechanical Governor—Positive Automatic Lubrication of Entire  
Motor and Transmission—THE GREATEST H. P. FOR WEIGHT OF  
CAR AND 5 PASSENGERS.

WRITE DEPT. 2 FOR CATALOG AND NEAREST AGENCY

## ROYAL MOTOR CAR CO.

CLEVELAND, OHIO





# CONTINENTAL TIRES

have revolutionized the tire industry in America. Owners are no longer satisfied with the old style construction in vogue for the past four years.

**CONTINENTAL  
TIRES**

set the pace, and by reason of years of experience on the new construction you may rely on it to be the safest.

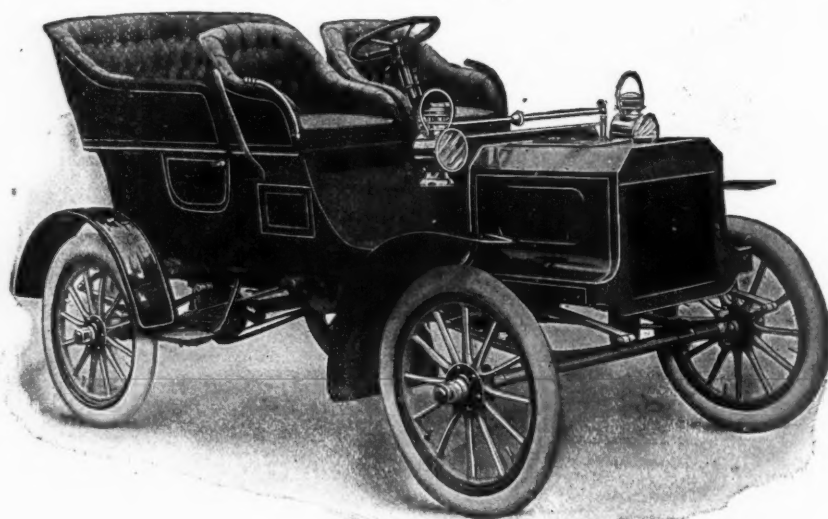
Send for "OPINIONS OF OWNERS."

Department M. A.,  
**The Continental Caoutchouc Co.**  
EMIL GROSSMAN, General Manager  
298 Broadway, - New York  
Factory: Hanover, Germany.  
*Samson Non-Skid Attachments on Continental  
Tires now in stock. Send for prices.*



# QUEEN

## MODEL "E"



# \$1,000.00

No equal for the price and quality.  
 Built throughout of best material.  
 Long life and easy running assured.  
 Plenty of power for all conditions.  
 Absolutely simple in construction.  
 All parts interchangeable-no delays.

## IT'S THE CAR YOU WANT

OUR BIG CATALOGUE WILL CONVINCE YOU

## C. H. BLOMSTROM MOTOR CAR COMPANY, DETROIT, MICH.

NEW YORK AGENT, C. A. Duerr & Co., 58th and Broadway.  
 BOSTON AGENT, F. E. Wing Motor Car Co., 66 Stanhope Street.  
 CHICAGO AGENT, Harry Branstetter, 1466 Michigan Avenue.  
 DENVER AGENT, Mathewson Automobile Co., 1420-22 Court Place.  
 PHILADELPHIA AGENT, The Motor Shop, 317-9 North Broad Street.

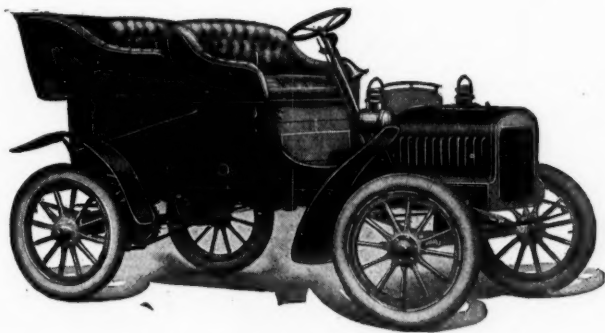


# The **BIG FOUR** of the **FORD LINE**



## THE POPULARITY OF OUR CARS

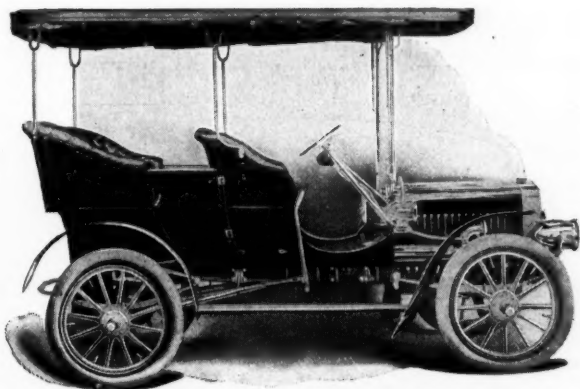
has created a demand for a complete line of Ford Models from which every user's individual requirements can be satisfied.



**Model C, \$950**

Removable rear entrance tonneau, double opposed motor.

Get a Ford **DEMONSTRATION** of power in **COMPARISON** with other cars and see the difference between **ACTUAL** power and **RATED** power.



**Model B, \$2,000**

Side entrance tonneau, 4-cylinder vertical motor.



**Model F, \$1,200**

is a larger and more powerful car than Model C, has the popular Ford double opposed motor, divided front seat, double side entrance tonneau.

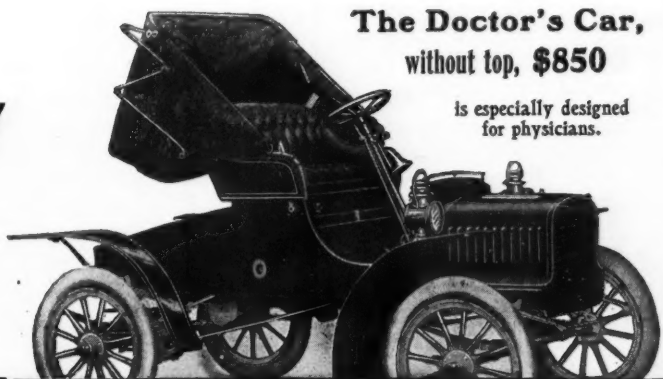
*Detailed description of these models, together with our new catalogue, describing unique Ford features, will be sent on request.*

**Ford Motor Company**  
**DETROIT, MICH.**

Canadian trade supplied by The Ford Motor Co.  
of Canada, Ltd., Walkerville, Ont.

**The Doctor's Car,**  
without top, **\$850**

is especially designed  
for physicians.



# TIRE TROUBLES ELIMINATED

NO PUMPING

NO EXPERIMENT:  
THOUSANDS IN USE

NOT A PENNY OF  
REPAIR EXPENSE

ONLY SUCCESSFUL  
AIRLESS TIRE  
EVER MARKETING

ORIGINAL COST  
SAME AS PNEUMATIC  
BUT MUCH CHEAPER  
IN THE END.

WE  
GUARANTEE  
EVERY CLAIM  
WE MAKE



NO PUNCTURING

NOT AN EXPERIMENT  
—A CINCH

NOT ONE OUT OF  
THOUSANDS IN USE  
EVER DISAPPOINTED

THINK OF WHAT IT  
MEANS TO KNOW

YOU WILL GET  
THERE AND BACK  
WITHOUT TIRE  
MISHAP

THE  
FAWKES TIRE  
IS GUARANTEED  
TO FULFIL  
EVERY CLAIM

To absolutely insure against tire troubles, equip your car with

# THE FAWKES

(Better begin *right now* to memorize that name)

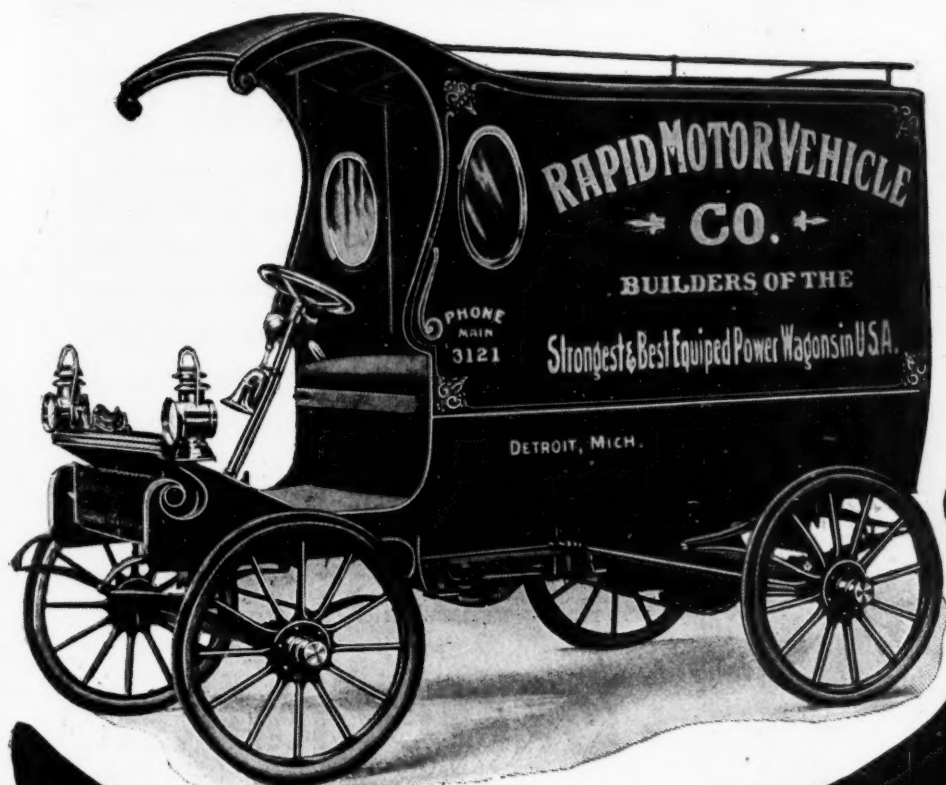
## INDESTRUCTIBLE AIRLESS TIRE

Guaranteed as easy riding as pneumatic and much more durable. The FAWKES TIRE is not a solid tire, but has a resilient, high grade rubber core, scientifically and mechanically arranged to take the place of compressed air, and yet produce practically the same cushioning result.

NOTE.—After the most rigid tests for the past year, we became convinced that the Fawkes Tire is unquestionably the best on the market, hence recently secured the patent rights for the United States, and will back up the tire with all the facilities and capital at our command. Our factory is modern in all its appointments. We employ the best men, and will put only the highest grade materials into the construction of the tire and we guarantee them. Equip your old machine with them and specify them on your new. Send for beautifully illustrated catalogue, giving testimonials and full particulars.

**MILWAUKEE RUBBER WORKS CO.**  
Rubber Street, Cudahy      SUBURB OF MILWAUKEE      WISCONSIN





**We  
Make  
Commercial  
Vehicles  
Only**

*"We Deliver the Goods"*

## **We Make Commercial Vehicles Only**

and we make them much better than any other manufacturer can possibly do, with whom delivery cars are only a side line.

Agents who handle the RAPID DELIVERY WAGON have a special field that does not compete with any other line. It means quick sales and good profits to the agent who will devote his attention to this wagon. Every power wagon we make is fully guaranteed for one year.

### **Our Rapid Delivery Wagon—Model B**

shown above, sells for \$1,250 f. o. b. Detroit. It has a strong 15 h. p. double opposed motor, that will carry over 2,000 lbs. safely and speedily.

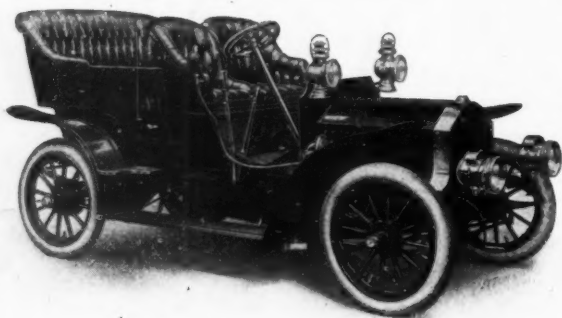
### **Other Models Made to Your Specifications**

There is a demand among up-to-date merchants for Motor Delivery Wagons. You should be prepared to sell them. Write us today for unassigned territory. Address all communications to Pontiac office, Dept. B.

**Rapid Motor Vehicle Co.**  
**Detroit, Pontiac, Mich.**

# Cleveland

## THE CAR OF SIMPLICITY



MODEL "D"—98-Inch Wheel Base

### A Few Facts—

not generalities—for the prospective automobile buyer concerning the CLEVELAND MOTOR CAR:

**MOTOR**—Four cylinders, vertical type, 18-20 B. H. P.

**VALVES**—Mechanically operated and interchangeable.

**COOLING SYSTEM**—Cellular radiator gear driven pump.

**CONTROL**—Spark and throttle levers both on steering wheel.

**IGNITION**—Jump spark from quadruple coil and storage cells.

**TRANSMISSION GEAR**—Sliding gear type, three speeds and reverse, controlled by one lever; direct drive on third speed.

**DRIVE**—Propeller shaft and bevel gear.

**BRAKES**—Double-acting on drum at rear of transmission, and internal expanding emergency brake acting on each rear wheel by hand lever.

**FRAME**—Pressed cold rolled steel.

**WHEELS**—Wood, artillery type.

**SPRINGS**—Half elliptic, 45-inch rear, 40-inch front, 1 1/4 inches wide.

**WHEEL BASE**—98 inches. Tread, 54 inches.

**WEIGHT**—2,000 pounds.

**BODY**—Five passengers, side entrance, individual front seats.

**PRICE**—\$2,800, with standard equipment.

In case it becomes necessary to readjust any of these working parts, they are accessible without removing the body or crawling underneath.

BRING AN EXPERT WITH YOU.

IMMEDIATE DELIVERY.

Send for new 1905 catalog (just issued) giving more specific details.

### Cleveland Motor Car Co.,

384 Erie St., Cleveland, O.

#### DISTRIBUTORS

BOSTON, Butler Motor Car Co., 998 Boylston Street

PROVIDENCE, Wilcox Motor Car Co.

CHICAGO, The Bennett Bird Co., 1404-1406 Michigan Ave.

SOUTHERN CALIFORNIA, Worthington Garage, Los Angeles

MILWAUKEE, E. W. Arbogast Motor Co.

To those who have been worn out by the physical torture of using crow-bars, pick-axes and "surprising language" in the strenuous endeavor to manipulate other types of tires, the mechanically fastened tire method most strongly appeals. Trouble, labor and vexatious delays are reduced to a minimum.

Do not, however, allow the strong points of simplicity of operation to overshadow the questions of safety, riding comfort and economy.

## Fisk Mechanically Fastened Tires

are the only auto tires made that embody the three essential tire qualifications

#### POSITIVE LOCKING DEVICE

Incorporating a life preserving principle which makes it impossible for the tire to fly off the rim whether it be inflated or not.

#### AIR ALL ABOVE RIM

Giving you the advantage of all the air where it is most needed as a cushion. Air is essential to comfort.

#### FIRST QUALITY AND CONSTRUCTION

Built so that you can rely on them for hard service and so they will last.

You Can Have Them for the Asking.  
See That They Are on Your Car.

## The Fisk Rubber Co.

CHICOPEE FALLS, MASS.

#### BRANCHES:

Boston,	226 Columbus Ave.	St. Louis,	3908 Olive St.
Springfield,	40 Dwight St.	Omaha,	1116 Farnum St.
New York,	754-756 Seventh Ave.	Kansas City,	1330 Main St.
Philadelphia,	828 Arch St.	Minneapolis,	704 Hennepin Ave.
Atlanta,	103 N. Pryor St.	Denver,	1533 Glenarm St.
Syracuse,	423 So. Clinton St.	San Francisco,	114 Second St.
Buffalo,	893 Main St.	Los Angeles,	1034 So. Main St.
Cleveland,	318 Euclid Ave.	Montreal,	Canada.
Detroit,	262 Jefferson Ave.	London,	England.
Chicago,	1251 Michigan Ave.		



## IS THE CADILLAC AGENCY A PROFITABLE PROPOSITION?

Down in North Carolina there is a town where every owner of an automobile but one (a Cadillac) is an "agent." The dealer who handles the Cadillac has had hard "sledding" against this kind of competition, but conditions are changing. Buyers are beginning to realize that discounts don't mean efficiency or a saving in the long run. Here's what one Cadillac buyer has to say about it:

WINSTON, N. C., Apr. 1, '05.

"I doubt if your product has ever received a greater compliment than in the placing of this order.

I have investigated various machines for several months without reference to price. I turned down an agency commission on all others and paid the Cadillac dealer his commission in order to get your machine. It is to me a marvel of simplicity and power. After looking one of your machines over thoroughly it seemed so simple that a child could almost understand and operate it, and yet when taken on the road the power your little engine develops is beyond comprehension. Every claim you make is more than substantiated. The Cadillac is certainly the car of all others for economy, simplicity and ease of maintenance."

(Signed)

CHAS. L. SUMMERS, M. D.

Again we say, the Cadillac agency is a valuable asset. No good dealer can afford to let his competitor have it.

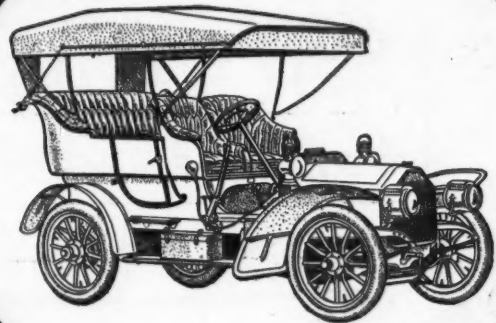
**Cadillac Automobile Company,**

Member Association Licensed Automobile Manufacturers.

**DETROIT, MICH.**

# Peerless

**THE  
CAR of  
ACHIEVEMENT**



### THE PEERLESS TOP

shown above is fully up to the well known "Peerless quality." Of graceful lines that harmonize perfectly with the lines of the car, the Peerless top has the double advantage of unusual lightness and great strength.

Besides being a perfect protection against wet weather when all the sides are down, the front apron, with very wide window of celluloid, forms an effective wind shield in fair weather. Thrown back, the top makes the best possible dust shield for the back of the car. In short, the joys of touring are most fully realized in a Peerless Car with a Peerless Top.

24 H.P. Car alone, 24 H.P. Car with Top,  
Price \$3200. Price \$3350

**The Peerless Motor Car Co.**

CLEVELAND, O.

## CLASSIFICATION ... WHY? DISTINCTIVE

THE LIGHTEST  
THE STRONGEST  
MOST DURABLE  
MOST EFFICIENT  
BEST FINISHED



ABSOLUTELY SAFE  
PERFECTLY CLEAN  
BEST TO RIDE  
MOST ECONOMICAL  
TO KEEP

## THE BAKER ELECTRIC

Attractive in Rich Finish and Design. ✱ Simply Manipulated. ✱ Always Satisfactory.  
A Carriage Any Lady Can Drive.

SEND FOR OUR B K CATALOG.

THE BAKER MOTOR VEHICLE CO., Cleveland, Ohio

Chicago Agents: PARDEE-ULLMANN CO., 1400 Michigan Ave., Chicago.



FIVE TON TRUCK.

## Gasoline Freight Trucks and Observation Cars

ANY CAPACITY OR SPEED  
WRITE FOR ESTIMATES

**C**ONSTRUCTION Heavy and Substantial. Safety factor of Five. STEEL FRAME.  
Size of Platform to suit purchaser. Enclosed Cab. ENGINE, four cylinder, vertical,  
Improved Design.

SLIDING GEAR TRANSMISSION; Three speeds ahead (maximum 10 miles per hour)  
one reverse.

Now operating successfully under Commercial Conditions, demonstrating Economy and  
Reliability.

## WHITING FOUNDRY EQUIPMENT CO.

GENERAL OFFICE AND WORKS: HARVEY, ILL. (CHICAGO SUBURB) U. S. A.

CHICAGO OFFICE: 1547 MARQUETTE BUILDING



## POPE *Waverley* ELECTRICS

are the ideal vehicles for runabout service, shopping, calling and the family spin in the park or nearby suburbs.

Many a man who owns and drives gasoline cars insists on having an electric as a general utility vehicle. With it he runs about town, to the station or from house to garage.

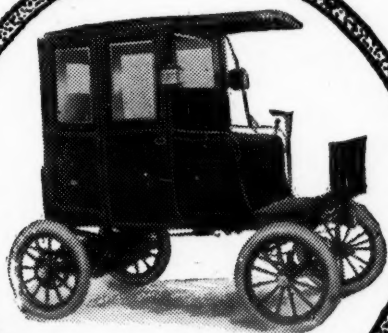
Agents who comprehend the situation are adding profits to their business by carrying a line of electrics and by operating a repair shop in connection with their charging station.

Surreys, runabouts, station wagons, Stanhopes, delivery wagons, etc., \$850 to \$2,250.

Send for catalogue and let us show you some figures.

### Pope Motor Car Co.

INDIANAPOLIS : : INDIANA



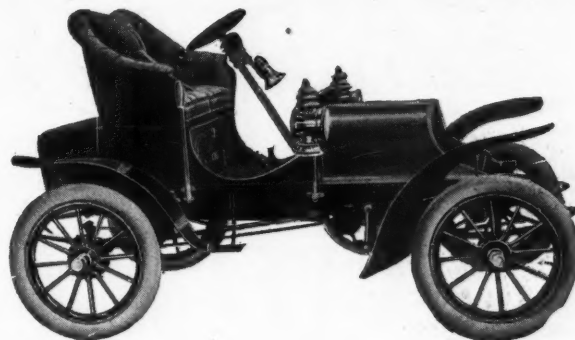
Station Wagon  
\$2,250

# FRANKLIN

## air-cooling

is a

## practical system



What *Franklin air-cooling* does would be impossible without the *Franklin* engine and the complete scheme of *Franklin* engineering.

Perfect efficiency throughout the entire *Franklin* system is the thing that has converted a theoretical ideal into a practical working reality.

The *Franklin air-cooling* system provides so amply for the most extreme conditions that it leaves no loop hole for objections and gives *Franklin* cars the full benefit of every air-cooling advantage.

Simplicity, lightness, strength, safety, the highest known proportion of usable power to weight—and of ability to cost, all follow in the train of the complete, practical *Franklin air-cooling* system.

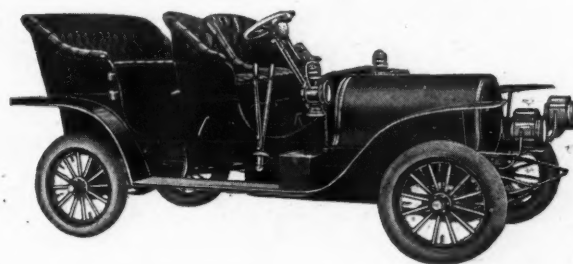
### Six Models for 1905

Runabout. Light Touring Cars, fixed detachable side entrance or rear entrance tonneaus. High-power side-door touring cars. Send for catalogue describing them in detail.

## H. H. FRANKLIN MFG. CO.

Syracuse, N. Y.

Member Association Licensed Automobile Manufacturers





## The Handy AUTOCAR Runabout

Its remarkable ease of control and the limited space in which it can be turned and handled, together with its lightness and power, make the Autocar Runabout the ideal car for use in crowded streets, for short quick trips in city or country, and for all other two-passenger work.

Owners of large four or five-passenger cars find it economy to keep an Autocar Runabout to save wear and tear on their big cars when only two passengers are to be carried.

The Autocar Runabout is positively the best runabout built. It has a 10-horse power, two-cylinder horizontal opposed motor; the motor is located under the hood in front, where it is instantly accessible; it has shaft and gear drive; three forward speeds and reverse.

New catalogue descriptive of Runabout (Type X), \$900; Type VIII, Rear Entrance Tonneau, \$1400, and Type XI, Four-Cylinder, Side Entrance Tonneau, \$2000, and dealer's name sent on request.

**THE AUTOCAR COMPANY, Ardmore, Pa.**  
Member Association Licensed Automobile Manufacturers.

**Kellogg's Double Acting Compound Pump**

**National Pressure Register**

**ARCHIMEDES**

**Wray Pump & Register Co.**

191-193 Mill St., Rochester, N. Y., U. S. A.

Archimedes said, "Give me a lever long enough and a place to stand on and I will move the world." Had he known of the Kellogg Compound Double Acting Pump and Pneumatic Lifting Jack, he would not have called for a lever.





## Thread Fabric Tires

The easiest tires in the world to handle.  
They can be removed from the rim and replaced  
again in less time than any other tires.

No lugs to interfere  
No pinched tubes  
No edge cutting  
No blistering  
Most durable

## The G & J Tire

for 1905 embodies all the requirements of the  
perfect tire.

Catalog on request.

**G & J TIRE Co.**  
*Indianapolis*

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429 Wabash Avenue  
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BOSTON  
43 Columbus Avenue  
CLEVELAND  
337 Huron Street



Rims branded in the channel with these copy-  
righted marks have been inspected and pro-  
nounced perfect. We guarantee our tires on all  
rims so branded.



## THE INCOMPARABLE WHITE THE CAR FOR SERVICE

The authorities of the World's Fair  
at St. Louis awarded Rollin H. White  
a Gold Medal for conspicuous in-  
ventive skill, displayed in the design-  
ing of the White Car. This was the  
only award to an individual connected  
with the automobile industry.

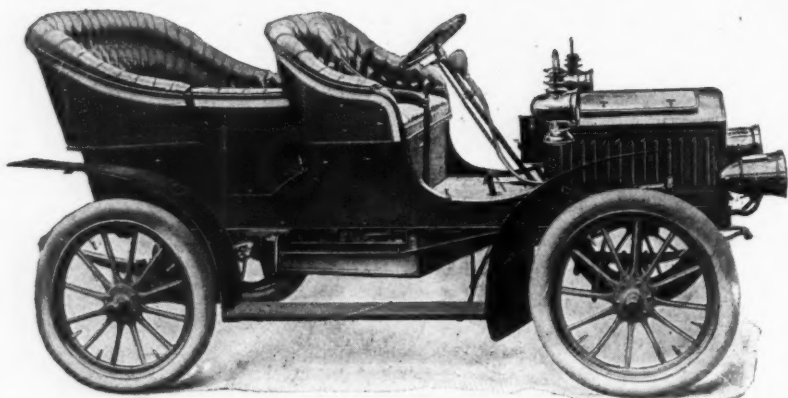
This official recognition of the su-  
perior merit of the White Car—the  
excellence of its general mechanical  
features and the safety, simplicity and  
economy of the White system of gen-  
erating and utilizing steam—accords  
with the judgment of the thousands  
who have experienced the pleasures  
of touring in a White.

WRITE TO US FOR LITERATURE

**WHITE, Sewing Machine COMPANY**

Cleveland, Ohio.

# WHEN A MAN BUYS A CAR HE WANTS



16 H. P., \$1,250.00

## SPECIAL FEATURES

Only double-cylinder, self-starting car in the world.

Absolutely reliable motor—no valves, no cams, no springs.

A carburetor that requires positively no attention, and is especially adapted for any climate or any altitude.

A transmission whose gears all run on roller-bearings.

### POWER—ENDURANCE—DURABILITY.

ALL PROVED by the longest continuous trip ever made in an automobile—6,000 miles—without change of parts or trouble of any nature.

What other car can prove every claim as has the Elmore Pathfinder?

Send for complete line of literature.

**ELMORE MFG. CO. : : 804 AMANDA ST., CLYDE, OHIO**

*Member Association Licensed Automobile Manufacturers.*

all he can possibly get for his money.

¶ That's natural.

¶ We believe that every automobile maker builds his cars the best he knows how, but—like the Kentuckian's claim for whiskey—while none are bad, *some* are better than others.

¶ With a sincere aim to make **THE**

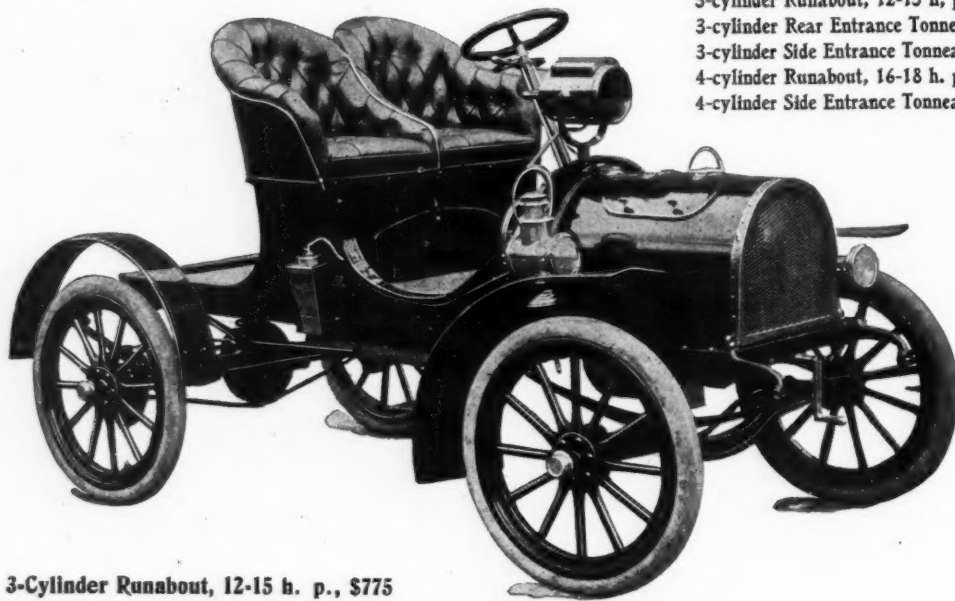
# ELMORE PATHFINDER

the most reliable car in the world, we have carefully tested all American competitive cars, and are assured that no car at anything near the Pathfinder's price can compete with it for real value. That's a cinch.

¶ And *value* is what you want.

# CAMERON

## HONESTLY NAMED "THE CAR OF ECONOMY"



3-Cylinder Runabout, 12-15 h. p., \$775

3-cylinder Runabout, 12-15 h. p., equipped with 2½ in. tires, - - - - - \$775  
 3-cylinder Runabout, 12-15 h. p., equipped with 3 in. tires, special guards, - 850  
 3-cylinder Rear Entrance Tonneau, 12-15 h. p., equipped with 3 in. tires, - - 950  
 3-cylinder Side Entrance Tonneau, 12-15 h. p., equipped with 3 in. tires, - - 1050  
 4-cylinder Runabout, 16-18 h. p., equipped with 3 in. tires, - - - - - 1050  
 4-cylinder Side Entrance Tonneau, 16-18 h. p., equipped with 3½ in. tires, - - 1200

**H**AS the cost of maintenance ever appealed to you as essential in purchasing a motor car? Although the pleasures of motoring are unlimited and your expense account may be likewise, still, all things considered, you do not want a motor car that is continually causing you trouble, annoyance and expense. What you want is a car with efficiency, stability, and the get there and get back qualities. Although the Cameron Cars have only been in the market four years, the Cameron air cooled motor dates back to January, 1898, over eight years of practical experience. We have done the experimenting and paid for it. We do not ask you to do any experimenting, but to simply enjoy the fruits of what we have paid thousands of dollars for, and that is, to obtain an Honest Car at an honest price.

**THE JAMES BROWN MCH. CO., Pawtucket, R. I.**





TRADE MARK

## We Preach Integral Construction

....as embodied in....

### GOODRICH AUTOMOBILE TIRES

because we believe it is the correct method, and our reputation as tire makers is too good and our business interests too important to jeopardize by any adherence to a construction which we have not PROVEN RIGHT by actual tests of the most exhaustive nature. It is the only construction where every part—every thread of fabric—every ounce of rubber—helps to share the working strain with every other part. The tire is built as a whole—wears as a whole. No patches, no weak spots.

#### Equip your car with GOODRICH AUTOMOBILE TIRES

**THE BAILEY "WON'T SLIP" TIRE.** Regular Goodrich construction, but provided with the Bailey "Won't Slip" Tread. Prevents slipping, slewing or skidding.

THE B. F. GOODRICH COMPANY, Akron, Ohio

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 Cleveland, 430 Superior Street  
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TRADE MARK



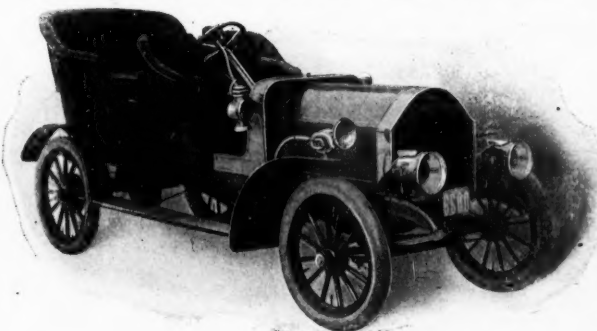
Rims branded in the channel with this copyright mark have been inspected and pronounced perfect. We guarantee our tires only on rims so branded.



TRADE MARK

# GAS-AU-LEC

"MARKS A NEW ERA IN AUTOMOBILE CONSTRUCTION"



THE SENSATION  
of the BOSTON SHOW

A 40-45 H. P. 4-cylinder, 4-cycle engine, five-passenger, side entrance, Gasolene Touring Car of the Highest Grade

**WITHOUT**

Starting Crank, Change Speed Gears, Clutch, Cams, Rocker Shafts, Tappets, Valve Gearing or complications.

Every movement of the motive power and the car, from a state of absolute rest, forward at any speed or reverse is controlled by one lever, operated either by hand or foot as preferred. Positively no other speed or movement controlling device of any kind on the car. Triple brakes—irreversible steering gear.

**THE GAS-AU-LEC IS THE SIMPLEST GASOLENE CAR IN THE WORLD**

both as to construction and control, and the easiest to operate and maintain.

**NOT AN EXPERIMENT, BUT A SUCCESS. NOT A FREAK, BUT A PRACTICAL REVOLUTION**

HAMILTON S. CORWIN  
President

Vaughn Machine Company

PEABODY, MASS.  
U. S. A.

**"THE SIMPLE CAR"**

# MICHELIN

Foreign cars are all equipped with "Michelin Tires"  
Demand them on your American cars

WISE BUYERS BUY "MICHELIN TIRES"  
They cost more at the start—much less in the end

What a user of Michelin Tires writes:—

Mr. E. D. Winans, Gen'l Mgr.,  
MICHELIN TIRE AMERICAN AGENCY, INC.  
6 West 29th Street, New York City.

Dear Sir:—In placing my order for complete tire equipment for my new car, I desire to inform you that during the last year I have had excellent satisfaction with "Michelin Tires," having used one set of four tires over 4,000 miles, without any serious mishaps.

With kind regards, very truly,  
Apr. 8, 1905. JAS. M. WATERS, 80 W. 40th St., N. Y. City.

E. D. WINANS  
General Manager

MICHELIN TIRE AMERICAN AGENCY, INC.  
6 West 29th Street, New York

Telephone: 4657 Madison

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SAN FRANCISCO, 304 McAllister St.

Side Entrance Touring Car, 108-inch wheel base (Standard), \$4,000

Side Entrance Touring Car, 112-inch wheel base, . . . 4,200

Royal Victoria . . . 5,000

Double Victoria . . . 5,000

Landaulet . . . 5,500

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The above are the handsomest, most luxurious, comfortable and efficient cars in America, combining the most advanced application of the gasolene motor to automobile service with *COLUMBIA* style, finish, exclusiveness.

Catalogue of Columbia 18 h. p. and 35-40 h. p. Gasolene Cars will be sent on request; also special Catalogues of Columbia Electric Carriages and Commercial Vehicles.

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CARS



**ELECTRIC VEHICLE CO., Hartford, Conn.**

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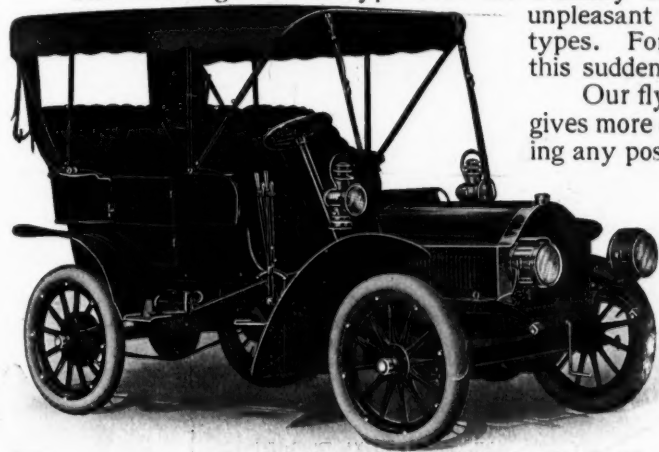


# "STEVENS-DURYEA"

## NEW 20 HORSE POWER, 4 CYLINDER TOURING CAR

### The Stevens-Duryea Clutch

Is of the multiple disc type, with leather against steel, composed of nine plates; the four large ones with leather facings on each side are attached to crank shaft, and five smaller ones of steel only to the shaft drive. They are held together by an enclosed spring of 300 pound pressure.



Model R 1905 Touring Car \$2,500.00

The advantages of this type over the ordinary cone clutch are numerous. It does away entirely with that unpleasant jerk, when clutch is applied, which is so apparent in other types. Foreign as well as domestic manufacturers are trying to overcome this sudden gripping of clutch by using springs to ease the jerk.

Our fly-wheel is placed in front where it should be located and thus gives more clearance under center of car (which is 14 inches); thus avoiding any possibility of striking fly-wheel against obstructions in the road, and by so doing disabling your driving mechanism.

Distributing weight more evenly and not having most of it in center of frame means **saving in weight**. The fly-wheel (weight only 68 lbs.) is in front and distributes wear on bearings more uniformly.

This superior feature is exclusively embodied in the STEVENS-DURYEA and places our car in a distinct class-by itself.

Ask your auto agent about the STEVENS-DURYEA.

Our new 44-page booklet is a work of art. Illustrates and describes in detail our popular models—L and R—and embodies in addition a number of unqualified indorsements from Stevens-Duryea partisans.

## J. Stevens Arms & Tool Company

705 Main Street,

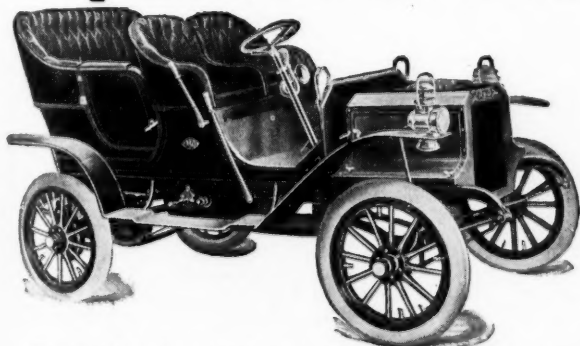
CHICOPEE FALLS, MASS., U. S. A.

Members Association Licensed Automobile Manufacturers

# REO

## The top third off the price

In buying motor-cars people usually pay for three things: Ideas, Cars, and Experiments. But with the REO that last third is left off the price.



Reo Touring Car, 16 H. P., 1,500 lbs., 5 passengers; 35 miles per hour. Roomy tonneau. Price \$1,250.



The Reo Runabout, 8 H. P., 900 lbs., two passenger car; 25 miles per hour. The best, speediest, lightest, most efficient of all Runabouts.

There were no costly experiments in building the REO; Mr. R. E. Olds had already studied the application of power for 20 years. He was and is the most experienced and successful gasoline motor designer in the

United States. He built the first practical gasoline runabout ever known—all before he began to build the REO.

He knew what he was about. He was sure of his car and sure of his market. He built 3,000 REOS all at once, with wholesale economy, and built them right.

There's no top third in the REO price.

Catalogue giving full information about both cars sent on request.

**REO Motor Car Co.**

R. M. Owen, Sales Manager

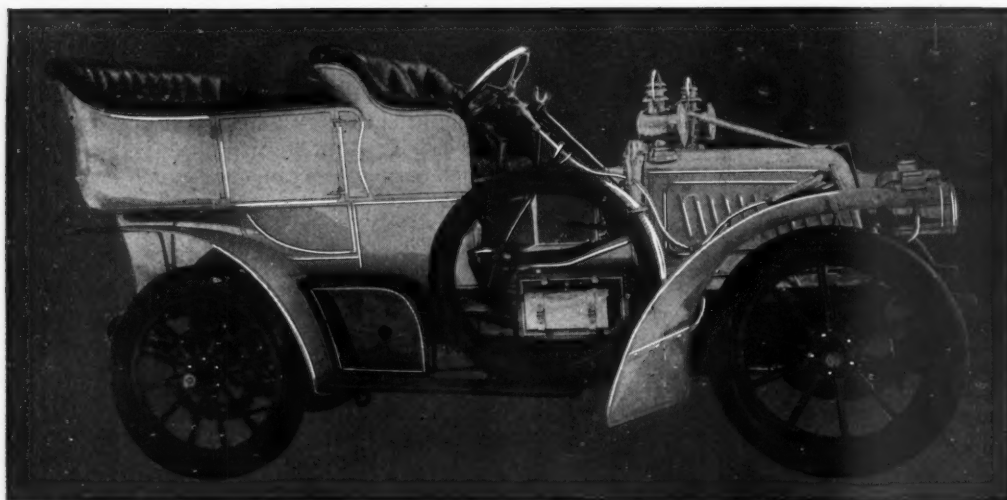
Factory: Lansing, Mich.

Sales Office: 138 W. 38th St.

Agencies throughout the United States.

# WORTHINGTON AUTOMOBILE COMPANY

547 Fifth Avenue **COMPANY** New York City



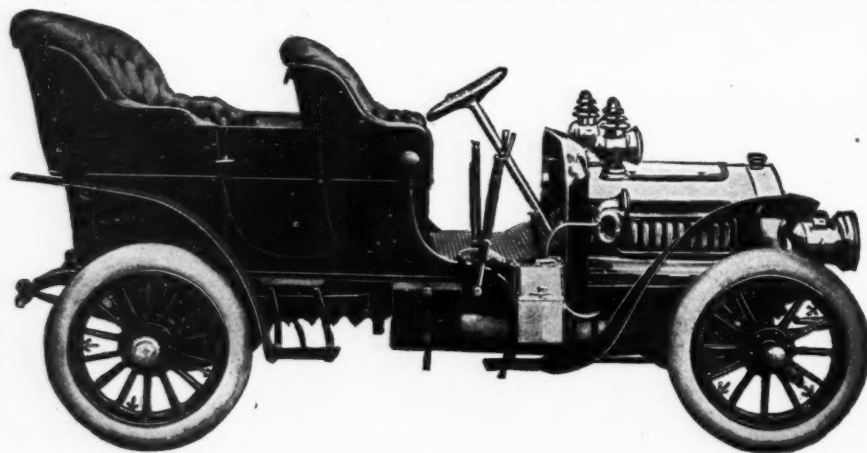
## 24 h. p. Berg Touring Car

**IMMEDIATE DELIVERY**

**MEMBERS A. L. A. M.**

# STUDEBAKER

THE AUTOMOBILE WITH A REPUTATION BEHIND IT



## No. 9503 4-Cylinder Gasoline Touring Car

Studebaker Quality Throughout

Write for Catalogue

**STUDEBAKER AUTOMOBILE CO. SOUTH BEND INDIANA**

Member Association Licensed Automobile Manufacturers.

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San Francisco, Cal., cor. Market and 10th  
Sts.  
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## RELIABILITY

Is the first and foremost requirement in an automobile.

If you are looking for a "Common Sense" car — one free from freakish schemes and untried devices, then the STUDEBAKER claims your special consideration. Its integral parts have all been carefully selected and all have been assembled in a satisfactory and harmonious car of the most reliable type.

Among its many advantages is the

### METHOD OF IGNITION EMPLOYED

The current is furnished by a dynamo reliably driven from the fly wheel—an original source and inexhaustible.

To make "assurance doubly sure," storage batteries are furnished, so that in case of accident to the dynamo the auxiliary current of the batteries can be immediately switched on.



## You need an air-cooled car

The returns from our general advertising show that there is an enormous and ever-growing demand for air-cooled cars.

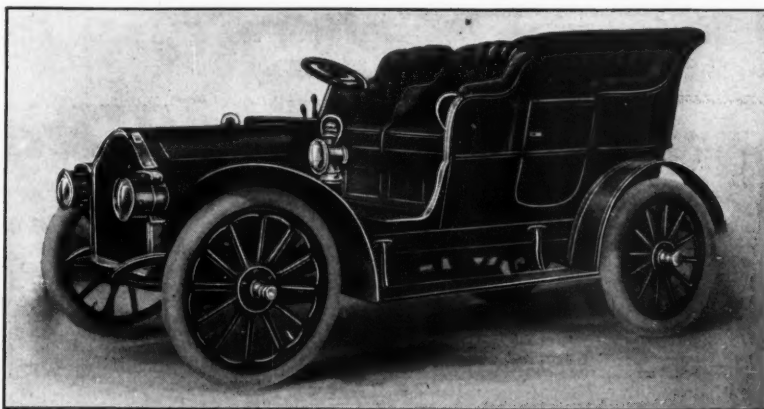
We have positively proved that the 4-cylinder, vertical tandem engine, Positive Air-cooled, gives better efficiency, up to 20 H. P. than any other type of motor.

It saves 350 lbs of dead weight, by cutting out the water, pipes, radiators, etc.

It adds the saving to speed and hill-climbing powers.

It saves 30 per cent of wear and tear on tires.

It makes the car simpler and easier to control and operate.



Waltham-Orient, Model de Luxe, 20 h. p., \$2250

### Waltham-Orients are the most desirable Air-Cooled Cars

**BECAUSE** every model has a Positive Air-cooled, 4-cylinder, vertical tandem engine. Other makers use this in their higher powered cars *only*.  
**BECAUSE** every model has sliding gear transmission with direct drive on high speed.  
**BECAUSE** every model has three forward speeds with reverse.  
**BECAUSE** every model has the mechanism hung on a sub-frame that is an absolute guarantee against faulty alignment, no matter what the roads are like.  
**BECAUSE** every model is designed on the lines of the best French cars, with Mercedes type hood. Every car is fit for high-class company.  
**BECAUSE** Waltham-Orients are Waltham-made—and "Waltham-made" means the best there is in machine work and engineering skill.

#### WALTHAM-ORIENTS

Model E, Touring Runabout, with semi-racing body,	16-H. P., \$1500
Model E, With Detachable Tonneau,	16-H. P., 1650
Model F, Light Touring Car with Tonneau,	16-H. P., 1650
Model G, Touring Car,	20-H. P., 2000
Model de Luxe, Touring Car,	20-H. P., 2250

#### ORIENT BUCKBOARD LINE

Buckboard, Model A,	- - - -	4-H. P., \$375
Surrey, Model B,	- - - -	4-H. P., 450
Runabout, Model C,	- - - -	4-H. P., 475
Tonneau, Model D,	- - - -	4-H. P., 525

## WALTHAM MANUFACTURING COMPANY

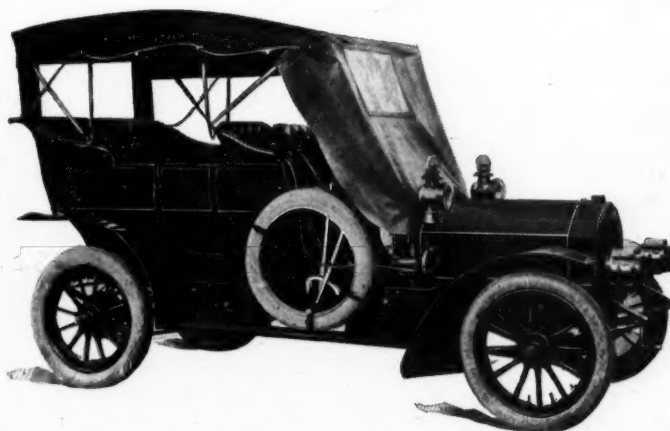
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Members of Association of Licensed Automobile Manufacturers.

# APPERSON

30, 40, 50 Horse-  
power Cars, carry-  
ing five or seven  
passengers.

Open Bodies  
 Limousines  
 Full Cape Tops  
 Victoria Tops



40-H. P. with Top Up and Front Curtain, and Showing Tire on Side of Car

We build a few good  
cars for those who  
want the Best.

Special cars built for  
those who want  
them

WRITE FOR OUR LARGE 1905 CATALOGUE

## Apperson Bros. Automobile Co.

### Kokomo, Indiana

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# "The Maxwell"

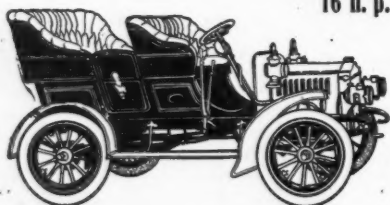
There is not one complicated detail throughout "Maxwell" construction. The number of parts has been cut down to a minimum, and each part has been treated as a special problem and carefully worked out to perfection. It is fundamentally a car easy to explain, easy to understand and easy to operate.

The owner of a "Maxwell" is absolutely sure of two things.

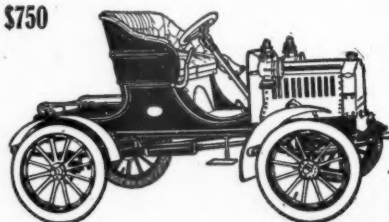
First, that no car in the market at any price is more reliable than his, and second, that he owns the one car before the public today in which, through its rare simplicity of construction, there is nothing to do but ride.

16 h. p. Touring Car, \$1400

8 h. p. Tourabout, \$750



The "Maxwell" cars have no pump (thermo-siphon). Their double opposed motor is in front under the hood and easily accessible in every part. They have Bevel Gear Drive. Metal Bodies. Transmission Case and Crank Shaft in Aluminum casting. "Perfectly simple and simply perfect."



**Maxwell-Briscoe Motor Co.**

TARRYTOWN, N. Y.

New York City Salesroom, 317-319 W. 59th St.

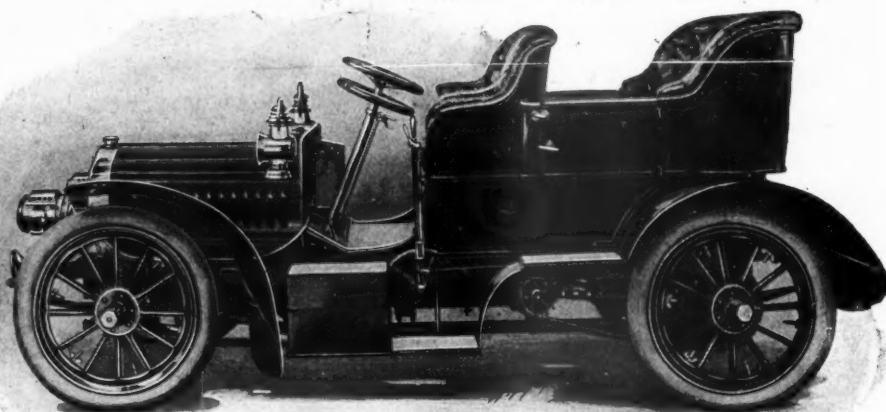
## Compound

**Beauty of  
Design and Workmanship**

Combined with the GREATEST  
DURABILITY of all working parts

**FULLY GUARANTEED**

We believe that a satisfied customer is the best advertisement we can possibly have, and therefore the whole energy of our enormous plant is directed toward producing a motor car that is "right" in the full sense of the word. :: :: :: ::



Model 3. 24-28 horse-power. \$2,000.00.

**The E. H. V. Co., Middletown, Conn.**

New York:  
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Milwaukee:  
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417 Poplar St.

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# STANDARD PARTS FOR POWER TRUCKS AND WAGONS

The marked economy of power wagons for delivery, express and truck service, and their superior reliability when in reasonably intelligent hands, is so well established that those who are conversant with the facts cannot fail to see that power wagons are rapidly beginning to supersede horse service.

## PARTS WE SUPPLY

STEERING GEAR, Complete	CHAINS	COUNTERSHAFT and REDUCTION GEARS
FRONT AXELS, Complete	SPROCKETS	COUNTERSHAFT BRAKES
HUB BRAKES	DISTANCE RODS	MOTOR HANGERS
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SEND FOR CATALOGS Nos. 2, 3 and 5.

TOURING CAR PARTS, CATALOGS Nos. 6, 7, 8 and 9

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Selling Agent: HAYDEN EAMES, American Trust Bldg., Cleveland

# PENNSYLVANIA CLINCHER

A good car will last for years with occasional repairs.  
A bad car will fall to pieces some day without warning.  
Do you use that kind of tires?

# PENNSYLVANIA RUBBER CO. JEANNETTE, PA.

# SOLAR MOTOR LAMPS

"SHOW THE WAY"



with a clear, steady, intense light. Wouldn't you rather SEE what's ahead than guess at it? No guessing when "Solars show the way."

There is a reason for everything, and the secret of SOLAR supremacy is found in the generator. Are you familiar with this "Solar System?" If not, it will pay you to investigate. You can't afford to add "lamp troubles" to your other auto difficulties and "good enough" lamps certainly mean "trouble" while with SOLARS you are guaranteed **perfect satisfaction.**

**BADGER BRASS MFG. CO., Kenosha, Wis.**

New York Office, 11 Warren Street.

## FOR SALE

A MODERN, UP-TO-DATE, FULLY EQUIPPED AUTOMOBILE PLANT, READY TO TURN OUT FOURTEEN MACHINES A WEEK; SHIPPING FACILITIES PERFECT; AMPLE SUPPLY OF SKILLED LABOR AVAILABLE. IMMEDIATE POSSESSION CAN BE HAD.

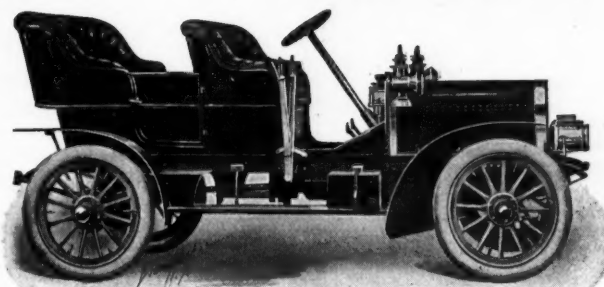
FOR FURTHER PARTICULARS APPLY TO  
FRANK A. HARRIGAN, GIRARD TRUST  
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BRUNDAGE, 49 WALL ST., NEW YORK CITY.



# CORBIN

## CARS

Have four cylinder motors that are AIR COOLED by the Corbin patented system.



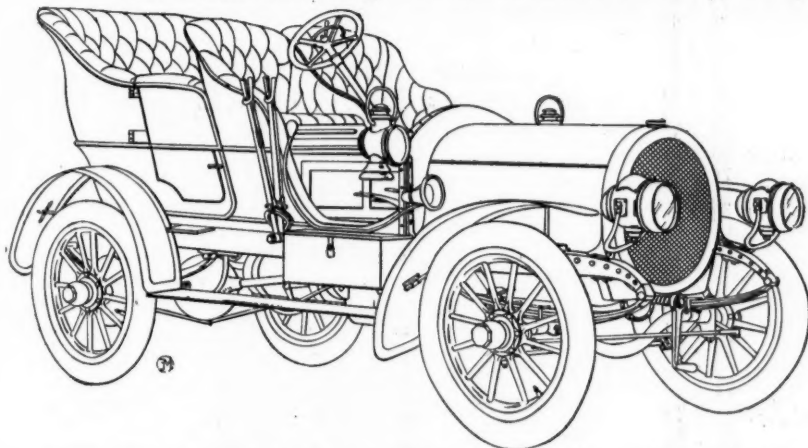
A unique type of fin is employed on the cylinders, giving radiation of unparalleled efficiency.

MODEL D. 16-20 H. P. PRICE, \$2000.

THE CORBIN MOTOR VEHICLE CORPORATION NEW BRITAIN CONNECTICUT

## National Motor Cars *"Watch for the Round Radiator"*

The individuality of the National is a daily advertisement for dealers



National Model C, Price \$2,500. 4 Cylinders, Vertical,  $4\frac{1}{4} \times 5$ , 24-30 h. p.

### "THE WONDERFUL HILL CLIMBER"

Quiet, easy running, simply controlled. All parts readily accessible. More features of real merit than any other touring car at any price.

Our catalogue is interesting.

Write now.

## NATIONAL MOTOR VEHICLE CO.

1006 East Twenty-second Street

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Chicago: Hayden Automobile Co., 1337 Michigan Ave.

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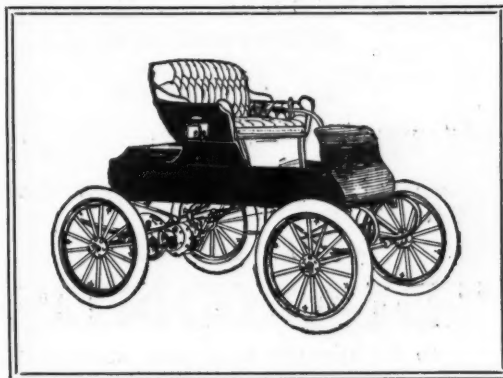
Cincinnati, O.: S. A. Hooker, 216 E. Third St.

St. Louis: Westminster Automobile Co., 4390 Olive St.

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EVERY DEALER has certain prospective customers who are prepared to buy National electric vehicles if properly approached on the subject.

Let us familiarize you with these serviceable little Runabouts and Stanhopes.

Our Catalogue is instructive.



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Lamps are made wherever possible with machinery—  
all alike and all good. The parts are always interchangeable. No hand work can equal the strength and symmetry of that done in our up-to-date factory devoted to the manufacture of *Modern American Goods* by *Modern American Methods*.

Notice the convenient and safe way in which we fasten the oil pot to the lamp. A turn of the hand and it is off—a turn of the hand and it is on, and when on, absolutely safe from falling off.

**All live dealers sell them at reasonable prices.**  
**Send for circular**

## R. E. Dietz Company

37 LAIGHT ST., NEW YORK

ESTABLISHED 1840

**EFFICIENCY AND DURABILITY**  
are important factors

## Diamond Chains

**ARE STRONGER  
and will wear longer  
THAN OTHERS**

Insist upon having your new cars equipped with them.

Replace your worn out and noisy chain with a "DIAMOND."

**WE MAKE  
"DIAMONDS"**

to fit sprockets of any standard

They are used as regular equipment on the following cars:

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Pope-Toledo  
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Glide  
Woods  
Lane

Black Diamond  
Stevens-Duryea  
Burt Mfg. Co.  
Caps Bros.  
Veracity  
Carlston  
New-Way  
Union  
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Acme  
Standard  
Tinscher  
Whiting

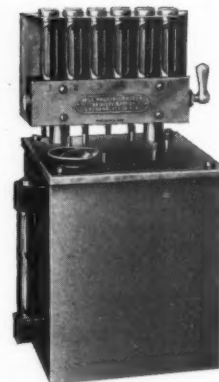
## Diamond Chain & Mfg. Co.

INDIANAPOLIS, INDIANA

## THE HILL PRECISION OILER

INSURES PERFECT LUBRICATION

**Your Money Back if it  
Does Not do the Work**



It measures the oil, and uniformly forces exact quantities to each bearing it serves, regardless of the resistance, or of the varying resistance, in the different tubes. It feeds only when the machinery is in motion.

## THE STEEL BALL COMPANY

832 Austin Avenue  
CHICAGO, U. S. A.



# NOTICE

Owing to the great demand for our

## TIRE SAFETY VALVES

we are unable to make deliveries under ten days from receipt of order.



Write today for circular and testimonials.

Fig. II

**Eastern Auto Appliance Co.**  
BOSTON, MASS.

## IMPORTED AUTOMOBILES

**Bayard-Clement**  
**Darracq**

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etc., etc.

Renault

THE GERMAN AND FRENCH  
AUTOMOBILE INDUSTRY

ENGINEER S. De FEHER

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PHILADELPHIA, PA.

# FAKE DIAMONDS

My, how they sparkle! From a distance they look just like the genuine. How different is the feeling of one who buys what he is told is the genuine or the "same thing," and finds he is duped. If he can catch the "swindler," he prosecutes him for obtaining money under false pretenses.

Is the situation any different in purchasing an automobile searchlight? Just because a dealer tells you it is "just as good," and offers it at the same price, why is he believed? Why not buy the genuine, and not an imitation?

The **Rushmore Lens Mirror Searchlight** is the only one containing the Rushmore Short Focus Lens, which is made in the Rushmore Company's factory, from the most expensive white lead glass. Other lights contain a cheap lime glass lens of focal length never less than twice the Rushmore make, and such lights with the same gas consumption give only one-fourth of the light of a Rushmore.

Write for full particulars, and see that you get a genuine, everyone of which has the name "Rushmore" engraved upon it.

## RUSHMORE DYNAMO WORKS

PLAINFIELD, N. J., U. S. A.

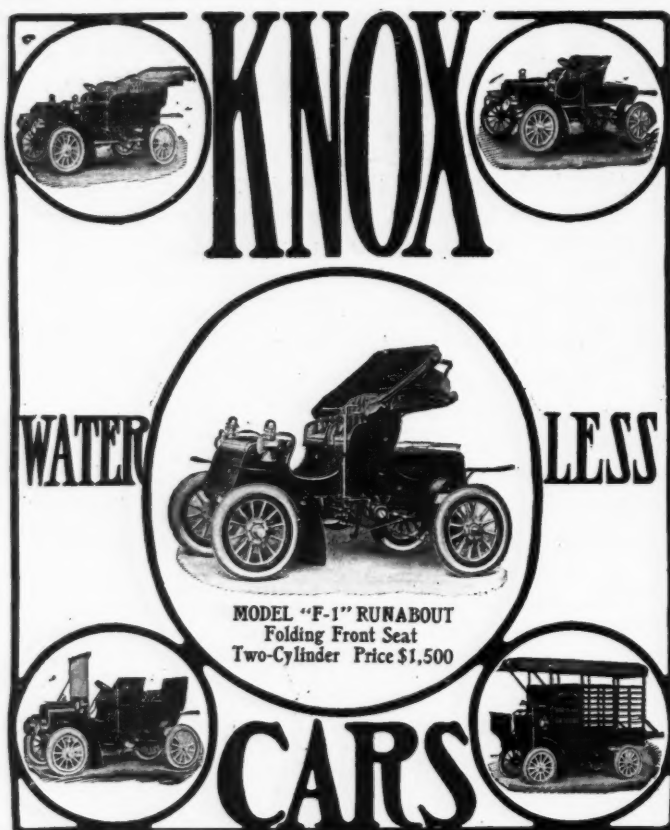
## THE SPEEDOMETER

THE accuracy of the JONES SPEEDOMETER is attained by the mechanically perfect application of an absolutely unchangeable law. Its standard of perfection will never be equaled by devices based on theories, the practical application of which, is so impossible that they were discarded in the development of the Jones Speedometer.

Write for the Speedometer Bulletin. Sent free.

JONES SPEEDOMETER,  
121 West 32d St., New York





# KNOX

WATER LESS

MODEL "F-1" RUNABOUT  
Folding Front Seat  
Two-Cylinder Price \$1,500

# CARS

## Made in America for Americans

The Knox Patent Air Cooling System is superior to any air cooling system extant. The corrugated pins surrounding the cylinder radiate the heat and make it possible to obtain 32 square inches of heat radiating surface per square inch of outside surface of cylinders. Write for catalog today.

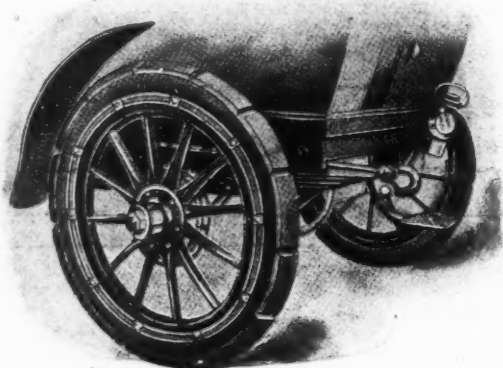
**KNOX AUTOMOBILE CO., SPRINGFIELD, MASS.**

Member A. L. A. M.

Selling Agencies in all principal cities.

## ...THE... "I-C" Leather Tire Tread

WON'T SLIP ... WON'T SKID



NON-HEATING

PUNCTURE-PROOF

Your Tire Never Wears Out if  
Covered with the I-C TREAD

Simplest, Most Practical and Durable Tread Made

Write for Catalog and Prices

**Ireson Leather and Export Company**

148 High Street

BOSTON, MASS.

# THE DARRACQ

Represents the Most Advanced  
Features in Foreign Improvement



Equipped with the Latest Magneto and Jump Spark  
Ignition :: Perfect Automatic Throttle  
Control :: Positively Noiseless

LET US PROVE THIS TO YOU

ALL PARTS KEPT IN STOCK

**THE F. A. LA ROCHE CO.**

652 to 664 Hudson Street, :: :: NEW YORK

Up Town Store, 147 W. 38th Street, NEW YORK

# THE LIMIT

OF UNFAILING  
CARBURETER  
EFFICIENCY

Here's Proof

From the  
Four Wheel Drive Wagon Co.  
of Milwaukee  
Commercial Motor Vehicle  
Builders

... After expending about \$150  
for various makes of carbureters and  
finding them all defective because  
of lack of range in throttling the  
engine, we were much pleased upon  
installing your Acorn carbureter.

We find this carbureter feeding  
the engine evenly and properly from  
the lowest to the highest speeds and  
WE DO NOT HESITATE TO RECOMMEND  
IT AS THE BEST CARBURETER WE  
HAVE TRIED.

IT FED OUR ENGINE PROPERLY IN  
ALL OUR RECENT TESTS, HAULING AS  
HIGH AS 27,000 LBS. GROSS WEIGHT  
ON OUR TRUCK, NEVER MISSING EX-  
PLOSION A SINGLE TIME. \* \* \* ETC.  
FOUR WHEEL DRIVE WAGON CO.,  
H. Theo Hansen, V. Pres. and Mgr.

It's not what we claim, so much as what actual users say of

# ACORN CARBURETERS

that proves their Sterling Reliability. A trial will convince anybody. Write

**BLACK & KRUEGER**  
Milwaukee

Wisconsin



You Will Never Know What  
**SATISFACTORY LIGHTS**

...ARE UNTIL YOU USE THE...

\$35.00



\$35.00

It operates equally well with any and all Acetylene lamps. Your LAMP is probably all right. What you really need is something that will furnish PURE, DRY, COOL, HIGH CANDLE POWER ACETYLENE GAS. The only way to get it is to use the

**PREST-O-LITE AS TANK**

If your dealer has none in stock, write us for a catalog and give us his name.

Over three hundred dealers have them. Your dealer ought to.

**THE CONCENTRATED ACETYLENE CO.**

Indianapolis, Ind.



**THE HEART OF THE AUTOMOBILE**

**The Schebler Carburetor**

This is the model No. 1 racing Schebler, which was attached to the automobile that broke all world's records for light and middle weight cars and defeated the big 90 h. p. foreign cars, at the Empire City track, Nov. 8th.

If you want to get full power and speed of your engine, besides having a carburetor that gives a perfect mixture at all engine speeds and is not affected by weather conditions, buy the **SCHLEBLER**. It is high priced but it does the work.

Special connection for attaching the Schebler to Oldsmobiles, any model.  
Special size carburetor for the Ford two and four-cylinder cars.

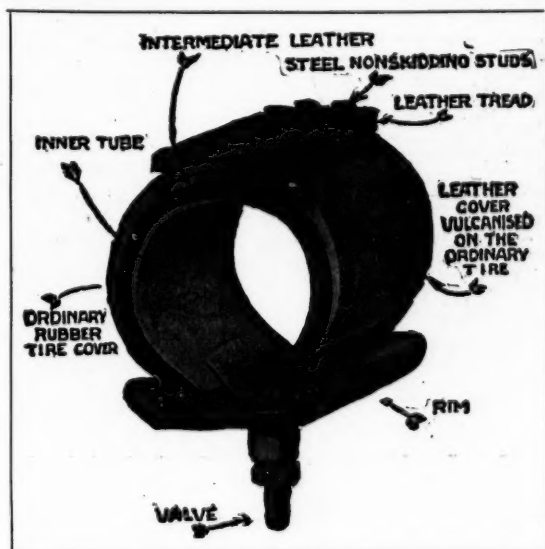
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Mfg. and Sales Agent for the World **INDIANAPOLIS, INDIANA**

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E. B. Belcher, 26 Green St., Malden, Mass., Boston agent.  
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P. J. Dasey, 431 Wabash Ave., Chicago, Ill., agent.  
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LEATHER TIRE**

**NON-SKIDDING :: :: PUNCTURE PROOF**



**BRANCHES**

Paris London Vienna Brussels Berlin Rome  
NEW YORK BOSTON  
12 W. 53d Street 20 Park Square

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**Standard Parts  
For Automobile Construction**

We have developed and are constantly adding to our line of standard parts, and our excellent equipment also puts us in position to furnish any special parts for any size cars.

Our **Pressed Steel Frames** are made of high carbon cold rolled steel, made for us from our formulas, and hot rivets are used in putting together the bars of the frames.

Among the many parts made in our plant your attention is called especially to our **Rear and Front Axles, Transmission Gears, Steering Columns, Wheels, Hubs, Hub Caps and Steering Wheel Rims.**

If you have anything special in the line of steel stampings or forgings we can make them for you.

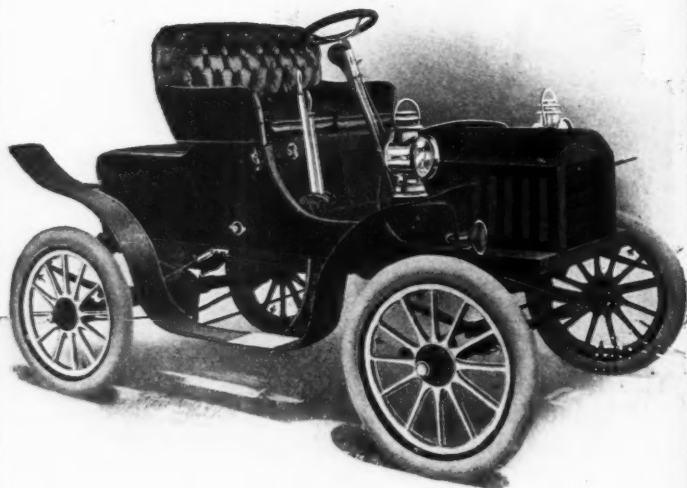
Circulars describing our parts sent on application.

**A. O. SMITH COMPANY**

**MILWAUKEE**

Selling Agent: **HAYDEN EAMES, Cleveland, Ohio**

## The SANDUSKY AUTOMOBILE CO. ....Courier



STYLE F. \$650.

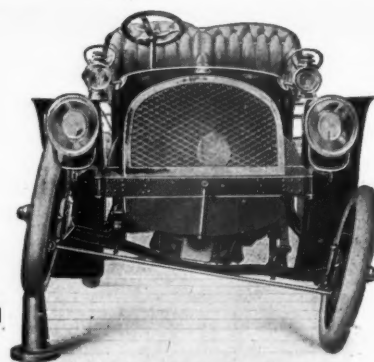
We can make immediate deliveries on the above model. We are turning out a new Light Tonneau Runabout for \$800, on which we can make deliveries after April 15. Write for catalogue.

### The Sandusky Automobile Co.

1107 Camp Street

SANDUSKY, OHIO, U. S. A.

Member Association Licensed Automobile Manufacturers.



Wheel Raised  
over a Foot

Body Level

## THE MARMON

### "A Mechanical Masterpiece"

This picture shows how the Marmon meets a most exacting test of flexibility—without compressing its springs and without the least tendency to raise any one of the other three wheels. No other car can do it, for the reason does not lie in springs, but in an exclusive Marmon feature,

### DOUBLE THREE-POINT SUSPENSION

Cast aluminum body on one frame, simple accessible oil-tight mechanism on another frame, each suspended on three pivotal points. Eliminates the binding and twisting strains inevitable in the customary rigid four point suspension; hence means fewer parts, longer life and greater efficiency. The gentle sway of the Marmon body over the roughest roads is unknown in any other car.

Rigid shaft drive, without Cardan joints; quiet, unique, air-cooled motor; positive automatic force lubrication that absolutely marks the end of oil troubles. Booklet No. 1 describes it.

**NORDYKE & MARMON COMPANY**  
Established 1851 Indianapolis, Indiana

## The Von Schwarz

None Genuine Without  
**JVS**  
on Tip and Pillar

### Acetylene Burners

#### SOME ADVANTAGES

They are Recognized Standard Burners the World Over

**Accurate in consumption.** Free from carbonization and other troubles, and they are

**Licensed** under Patent 589342, August 31, 1897. This patent has been adjudicated by the U. S. Court of Appeal and IS VALID.

We advertise not only our burners, but also those firms who confine themselves to equip their lamps with **Licensed Burners.**

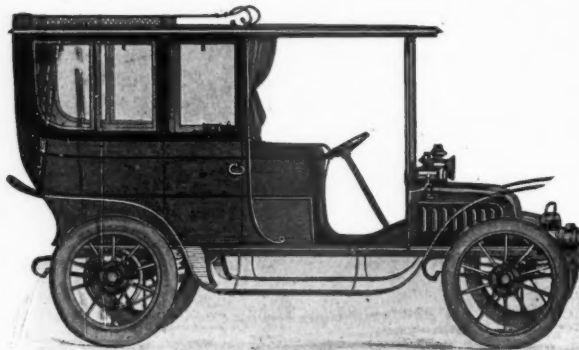
Is there any reason why you should equip your lamps with cheap infringing imitations? **Protect your customers as we do protect you.**

For Information and Prices Apply to  
**H. KIRCHBERGER & CO.,**  
GENERAL LICENSEES,  
50 Warren St., New York



## KIMBALL

### FINEST QUALITY—SPECIAL DESIGN BODIES AND TOPS



**PURCHASE THE CHASSIS** Then let us make a Special Body to suit your individual taste.  
Inquiry solicited for Bodies and Tops of all kinds for any make of machine.  
Bodies on old machines Altered, Changed and Made Over to suit.  
All kinds of Repairing and Repainting.  
We have clean, dry Storage Rooms where cars are not interfered with or handled when in storage. **PRICES REASONABLE.**

**C. P. KIMBALL & CO.,** 315 Michigan Ave., Chicago



# Best and Cheapest

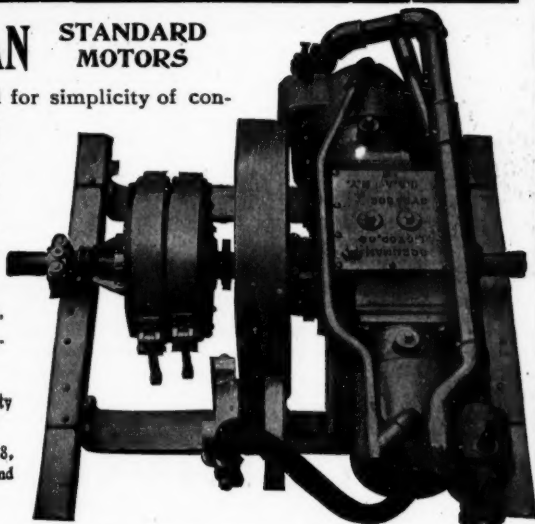
## BRENNAN STANDARD MOTORS

are unexcelled for simplicity of construction, substantial and large bearings, ease of adjustment. All parts unusually accessible for inspection.

Built in 6, 8, 12, 14, 16 and 20 h. p. Investigation solicited.

We make a specialty of Motors for

THOMAS MODEL 18, CADILLAC, FORD and OLDSMOBILE.



Terre Haute, Ind., Feb. 17, 1905.

Brennan Motor Co., Syracuse, N. Y.  
Gentlemen:—The writer has been operating one of your motors, a double cylinder eight horsepower for the past two seasons and wishes to state that the motor has given excellent satisfaction and the repairs on same have been nothing whatever. The motor is being used on a 1,200-lb. runabout automobile. Would state that with the exception of twice I do not know of the motor stopping of its own accord during the season. I am satisfied that I have had excellent good luck and wish to recommend the Brennan motor to any one wishing a motor for an automobile. Yours truly,

NAME WILL BE GIVEN ON APPLICATION

Write for Particulars.

**BRENNAN MOTOR CO.**  
SYRACUSE, N. Y., U. S. A.

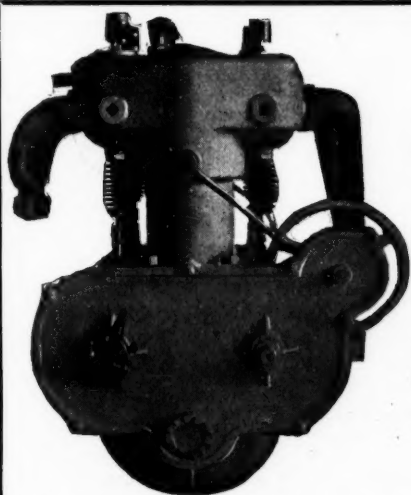
# MARVELS OF SIMPLICITY

## AIR COOLED HAMMER RUNABOUTS

We want every dealer in the United States to familiarize himself with our methods—write.

**HAMMER MOTOR CO.**  
1230 Majestic Building DETROIT, MICH.

Also Manufacturers of Auto Boat Engines and Commercial Motor Vehicles.

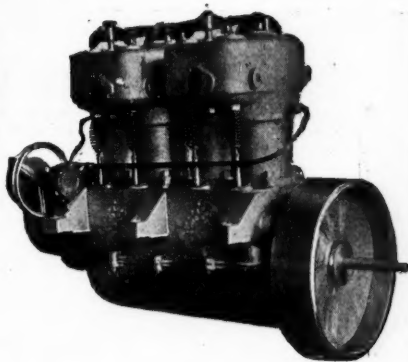


BUY  
KAESTNER  
PRODUCT

## MOTORS

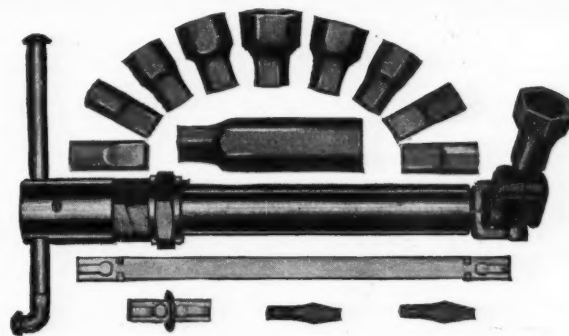
FOR

Automobiles  
Boats  
and  
Mining  
Machinery  
Transmissions  
Etc.



**CHAS. KAESTNER MFG. CO.**  
SOUTH BEND, INDIANA

# THE AUTO CLE



The Auto Cle Wrench comprises all the above parts. These sockets fit any nut or bolt on any machine.

The swivel joint works at an angle enabling the easy reaching of the most inaccessible part of the machine.

The Auto Cle has a ratchet movement in either direction, right or left hand.

Saves its cost in a short time.

Send for Circular.

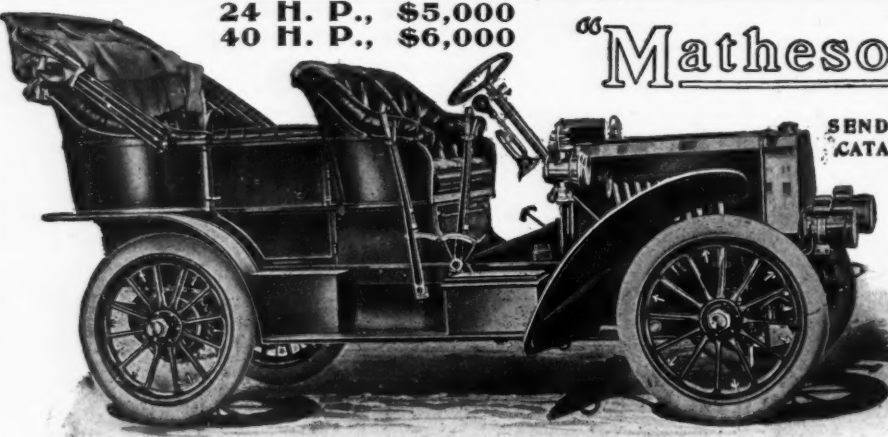
Sole manufacturers for the United States.

**Railway Appliances Company**  
1175 Old Colony Building CHICAGO

24 H. P., \$5,000  
40 H. P., \$6,000

**"Matheson"**

SEND FOR CATALOGUE



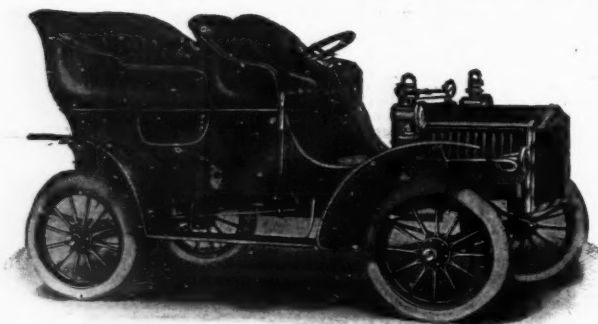
"AMERICA'S FINEST MOTOR CAR"

**CHARACTERISTIC FEATURES:**

Self-starting from the seat.  
Practically noiseless.  
Absence of vibration.  
Four-cylinder vertical engine.  
Valves, in the head.  
Automatic carburetor, never requires adjustment.  
Automatic speed control, by governor.  
Automatic lubrication.  
Single lever control.  
"Make-and-Break" ignition.  
Irreversible steering gear.  
Four powerful brakes.  
Timken roller bearings.  
Armored frame.  
Road clearance of 12 inches.  
Side entrance.  
Aluminum body.  
Wheel base 106 inches.  
Imported "Continental" tires.  
Improved Honeycomb radiator.  
Long life—insured by using greater factors of safety in every vital part than ordinarily employed.  
Speed—Guaranteed 40 to 60 miles an hour, according to H. P. gear.

**MATHESON MOTOR CAR CO., Holyoke, Mass.**  
New York Agents, SHEPARD BROS., 500 Fifth Ave.

## THE MICHIGAN TOURING CAR



Model "E." \$1,250

The Car of POWER  
The Car of BEAUTY  
The Car of SAFETY  
The Car of ROOMINESS  
The Car of SPEED  
The Car of ALL AROUND EXCELLENCE

**WE HAVE THE PROOF**

Write TODAY for it

**Michigan Automobile Co., Ltd.**

KALAMAZOO, MICH.

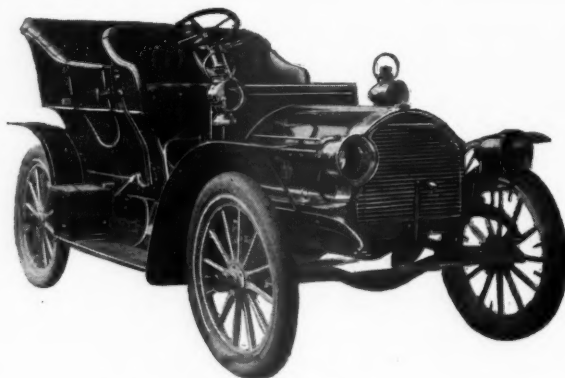
## BY COMPARISON

...THE...

## STODDARD-DAYTON

Heads the list for Accessibility, Simplicity, Construction. Not barring cars costing twice as much. The best testimonial is the excellent behavior of the Stoddard-Dayton after leaving our hands. Continued perfect performance. No noise, ample power, easily controlled, and

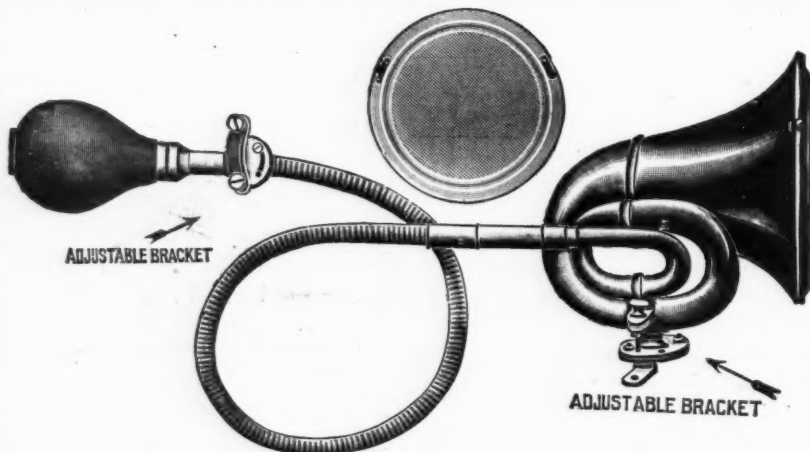
**AS GOOD AS IT LOOKS**



\$2,000.00

**Dayton Motor Car Co., Dayton, O.**

MCDUFFEE, AUTO CO., 1449 Michigan Ave., Chicago.  
MAXWELL BRISCOE, INC., 317-319 W. 59th St., New York.  
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## La Tuba Horn

The latest European idea of a horn, made with an extra coil in the body of horn, which produces a deep and melodious tone. Two sizes, \$10 and \$12 each. 40 other styles and sizes in stock—brass or nickel plated. Catalog mailed on request.

## Charles E. Miller

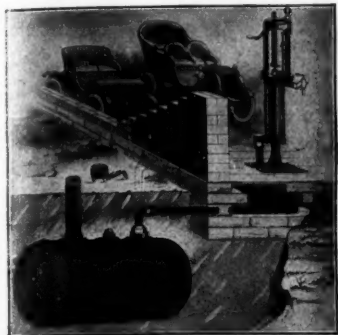
Manufacturer, Jobber,  
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The Bowser Long Distance Gasolene Storage System—Tank Buried—Pump in Building.

Established  
1885

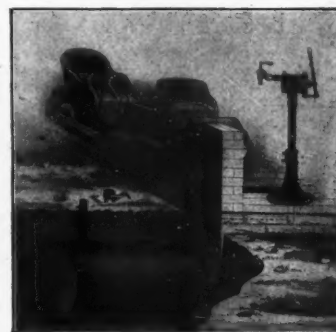
## BOWSER GASOLENE TANKS

Over 200,000  
in use

We manufacture Gasolene Storage Outfits—all kinds. Self-measuring Outfits for Garages; smaller, less expensive ones for private automobilists. If you use any quantity of gasolene—no matter how small—you will find in our catalog a tank exactly suited to your purpose. We shall be glad to mail you our catalog. It was prepared for YOU. Your request carries with it no obligation. It simply indicates your willingness to investigate the most complete line of tanks ever offered gasolene users. Ask for Catalogue XV.

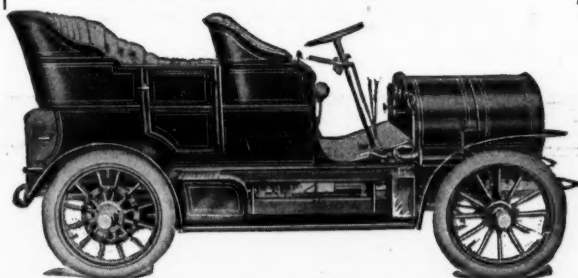
**S. F. BOWSER & CO., Inc.**  
FORT WAYNE, IND.

(Eastern Office, 255 Atlantic Ave., Boston, Mass.)



Bowser "Little Giant" Gasolene Outfit

## THE EXCELLENT



## GROUT

A Steam Touring Car Thoroughly Built.

Price, \$1500.

Capacity, 5 people.

Side Entrance.

Wheel-base, 98 inches.

Wheels, 30x3 1-2 inches.

Frame—Armored Wood.

Road Clearance, 10 inches.

Generator, 18 inches.

Engine, 12 H. P.

Ball Bearings.

Powerful Brakes.

Speed; 30 to 40 miles per hour.

Automatic Fuel Control.

Practically Noiseless.

Automatic Lubrication.

Absence of Vibration.

Side Chain Drive.

Fuel Capacity about 100 miles.

Water Capacity, 40 miles.

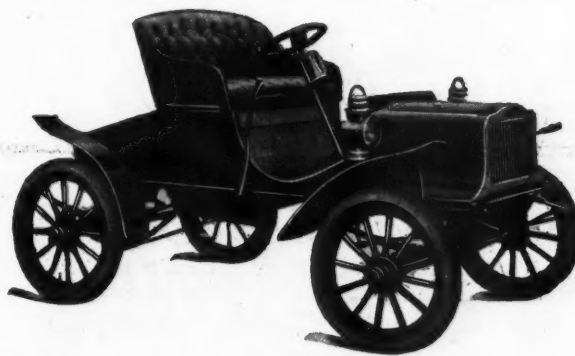
Steering, Irreversible.

**Grout Bros. Automobile Co.**

280 East Main Street, Orange, Mass.

Boston Branch—151 Columbus Ave.

## The \$500 Gale



WE wish to state that because this car is sold at so low a figure, is no sign that it is cheap. Every part is the best that we can make or buy, and we will replace any defective parts free of charge at any time inside of one year after purchase.

Eight H. P., horizontal single cylinder 5"x8"; weight, 1,100 lbs.; 72" wheel base; 28"x3" tires. New-type transmission; two speeds, forward and reverse; absolutely oil tight; cone clutch on high speed; new-type bands on low and back up; no gears running on high speed. Pump direct connected to engine. Gasoline and water tanks hold five gallons each. Kingston carburetor, Dow vibrator coil, Brown & Lipe differential, diamond chain. Speed, 30 miles per hour. Frame, angle iron. Body can be tipped up by loosening two nuts in floor of car and removing cotter pin. Car can be run without body, as all wires, connections, etc., are on the chassis.

Chicago Agents: MEAD MOTOR CO.,  
1243-45 Wabash Ave.

**THE WESTERN TOOL WORKS, Galesburg Ill.**

## New Gasoline Delivery Wagons

Two Sizes, 1,000 lb. and 2,000 lb. Capacity

Write for particulars

Passenger Omnibuses, Delivery Wagons,  
Passenger Brakes, Delivery Trucks,  
Trackless Trolley Cars

Manufactured by

**THE AUTO-CAR EQUIPMENT COMPANY**

1417 Niagara Street

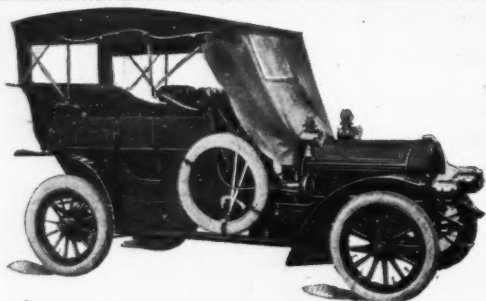
BUFFALO, N. Y.



1,000 lb. Gasoline



Electric Passenger Break



**STYLE U** Top raised, showing the curved joints, also shows front storm curtain attached

PROTECTION FROM RAIN, SUN, WIND AND DUST IS NOT ONLY DESIRABLE BUT AN ABSOLUTE NECESSITY. IT'S NOT A QUESTION OF, SHALL YOU BUY A TOP--BUT WHICH SHALL YOU BUY?

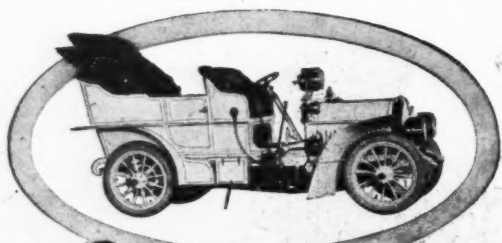
# ECLIPSE TOPS

**BEST IN THE WORLD  
---IN EVERY WAY**

Our line includes every style of top, canopy and wind shield at wide range in prices

SEND FOR OUR ILLUSTRATED CATALOGUE. IT EXPLAINS PERFECTLY WHY YOU SHOULD BUY AN ECLIPSE

**ECLIPSE BUGGY & MFG. COMPANY**  
FORT WAYNE, :: :: :: :: INDIANA



**Locomobile**  
*Easily the Best Built Car in America*



**Locomobile Gasolene Cars**

All prospective purchasers of 4-cylinder cars should read our new catalogue. Mailed free.

1905 Models. All 4-Cylinder, Side-Entrance Cars. Prices, \$2,800 to \$8,000.

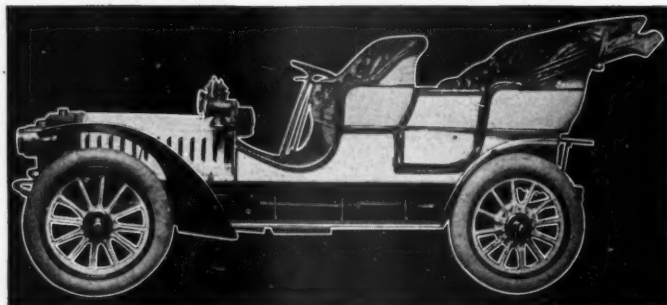
The Locomobile Company of America, Bridgeport, Conn.

New York, B'way and 76th St. Boston, 15 Berkeley St.

Philadelphia, 249 N. Broad St. Chicago, 1334 Mich Av.

Members A. L. A. M.

## AUSTIN A LUXURIOUS CAR



### THAT LOOKS THE PART

Four-cylinder, 5 1-2 in. bore, 5 in. stroke, 50 h. p., weight 2,500 lbs., price \$3,500.

Full Extension Top, \$150.00 extra. 108 inch wheel base, 36 inch wheels, 4 1-2 inch tires, 44 1-2 inch rear seat. Bevel gear drive, direct on high speed. Our new sliding gear transmission has four forward speeds. Write for complete description.

**AUSTIN AUTOMOBILE CO.**  
GRAND RAPIDS, MICH.

## Have you seen the new KOKOMO Mechanically-Attached Automobile Tire?



*It is just what you  
have been looking for*

Quickly attached and detached.  
Creeping and Rim Cutting entirely avoided.  
Made of the very best material and workmanship throughout.  
Write us for full particulars.

**Kokomo Rubber Co., Kokomo, Ind.**





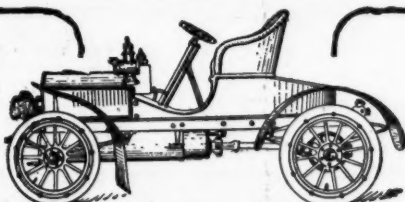
## Type VIII.

The Fastest Touring Car in the World at the Price.

Complete with two headlights, sidelights, tall lamp, horn and top,

\$2,750

DIRECT, POSITIVE CONTROL.



## Type X.

A Runabout Built Like A Racing Car.

Complete with headlights, sidelights, tall lamp and horn. Touring Runabout, Semi-Racing Body,

\$1,000

LIGHT WEIGHT—HIGH POWER.

## ACME MOTOR CARS DEVELOP FIVE CARDINAL POINTS--BY DEMONSTRATION:

Simplicity of Operation, Elegance of Appointment and Design, Highest Degree of Workmanship, Greatest Power in Proportion to Weight, CORRECT ENGINEERING PRACTICE THROUGHOUT.

ACME MOTOR CARS show *by test* the Greatest Reserve Force and Highest Efficiency known to modern automobile engineering. Do not decide on your machine until you have had positive proof of these actual ACME points of superiority by a practical demonstration.

Appointments for Demonstration in TEN CITIES.

## ACME MOTOR CAR COMPANY, READING, PA.

Boston Motor Co.  
43 Columbus Avenue  
Boston, Mass.  
Mass. DistributorsAcme Motor Car Co., of N.Y.  
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N. Y. and N. J. Distributors

Southern Automobile Co., Atlanta, Ga.

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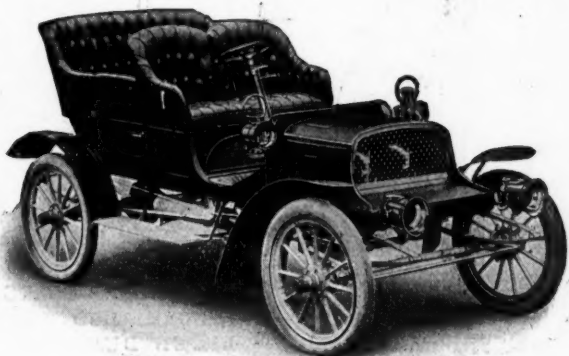
T. C. Bradford, Wilmington, Del.

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9 Ocean Parkway  
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16 H. P.

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Air Cooled  
1600 lbs.

The Quality Car



These cars have shown such convincing proofs of their superiority over all other cars of their class, as have taxed our capacity to satisfy the demand.

Dealers and users are quick to recognize their good points—Efficiency, Strength, Economy, Beauty and Speed.

EASY TO SELL EASY TO DRIVE  
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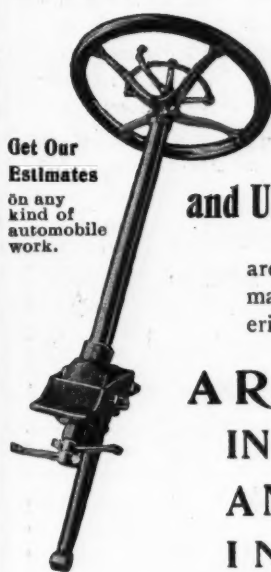
PREMIER MOTOR MFG. CO.

1001 Georgia St. INDIANAPOLIS, IND.

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DROP  
FORGINGS

and UNIVERSAL JOINTS

are used by the largest  
manufacturers in America because theyARE RIGHT  
IN QUALITY  
AND RIGHT  
IN PRICE

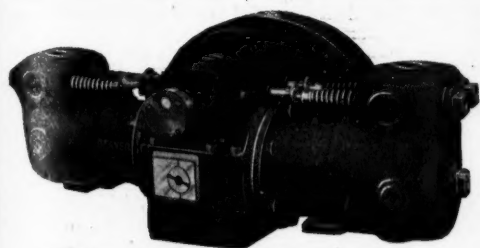
We manufacture Drop Forgings, Bevel Gears, Crank Shafts, Connecting Rods, Universal Joints, Steering Knuckles, Yokes, Parts for Running Gear and Machine Forgings. Auto Supplies, Steering Wheels (solid, sliding and tilting), Steering Gears complete with control, Radiators, Tanks, Circulating Pumps, Oiling Devices, Tank and Pipe Strainers, Tank Fillers, etc., etc.

The HUSSEY DROP FORGE &amp; MFG. CO.

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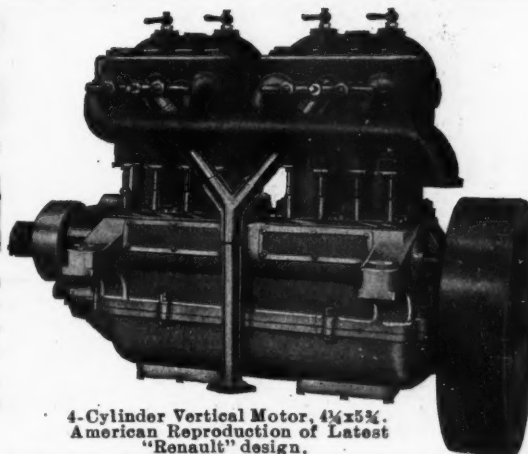
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Horizontal Opposed Cylinder Engine, 4x4.  
Same Engine 5x4½.Design, Workmanship, Material  
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We are equipped to furnish these engines on a manufacturer's—not a builder's—basis. This guarantees low cost, interchangeability of parts and uniform performance.

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4-Cylinder Vertical Motor, 4½x5½.  
American Reproduction of Latest  
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### THE ST. JOHN SOLID RUBBER CUSHIONED TIRE

The greatest tire man's ingenuity ever produced.  
The tire that solves the most vexing problem now presented to both the manufacturer and private owner of automobiles.

It cannot PUNCTURE. Perfectly RESILIENT, and saves one-third the power now expended on other tires. Fits regular Single and Clincher rims. Easily applied.

Adopt our tire and save annoyance and expense.

Write for our 1905 Catalogue, with testimonials, etc.

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Number 8

## Duro Quality

The users of **DURO** Portable Batteries and Electric Lamps do not need to read this.

They **KNOW** what it means.

Simply put, it means this:

Highest in workmanship, materials, construction, quality and durability.

No amount of trouble, care or work is too much to use on **DURO** goods.

That is one reason **DURO** sells for more than others.

**DURO** goods are worth it.



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## CHICAGO BATTERY CO.

1400 Michigan Avenue  
CHICAGO



## Scandinavian Fur & Leather Co.

...Highest Grade of...

## Auto Garments

of every description  
for ladies and gentlemen

LEATHER COATS  
VESTS CAPS  
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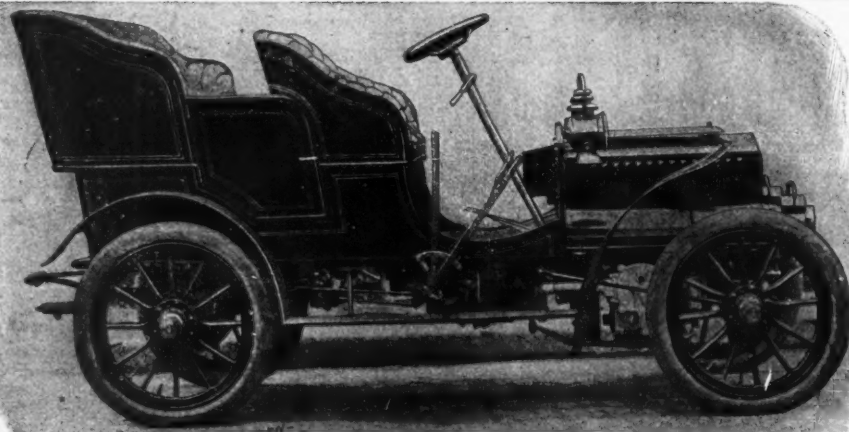
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CHAUFFEURS'  
WATERPROOF  
CLOTH SUITS

Write for new catalogue

## Scandinavian Fur & Leather Co.

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CHAINLESS WOLVERINE, MODEL D

## The Chainless Wolverine

20 Horse Power

3 Speed Ahead Sliding Gear Transmission

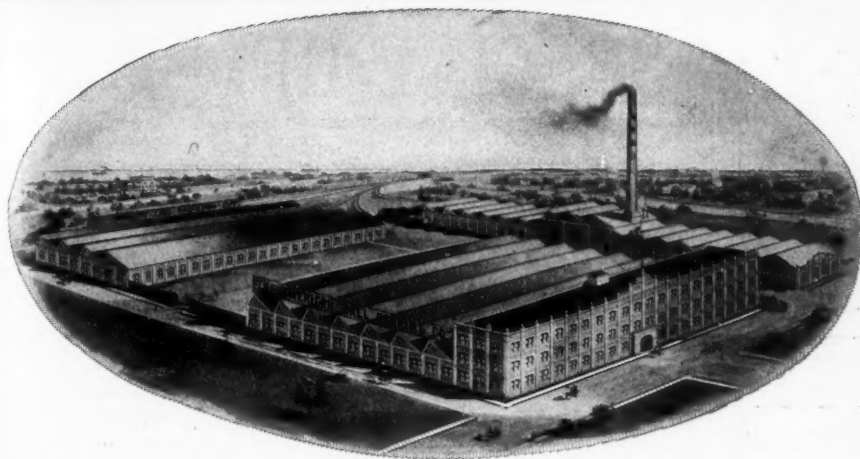
2-Cyl. Opposed Motor Direct Shaft Drive

EVERY PART GUARANTEED FOR ONE YEAR

Write to-day for our new proposition  
just issued. Might ask about our new  
40 H. P. 4-Cylinder Model "E"

Reid Mfg. Co., DEPARTMENT D  
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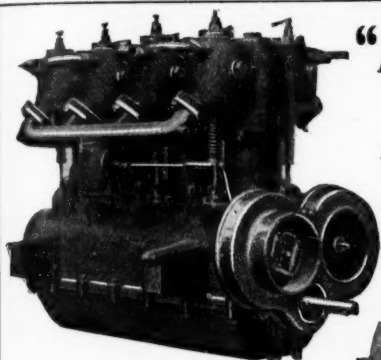




The output of COMPLETE FRONT and REAR AUTOMOBILE AXLES of this plant exceeds the capacity of all competition combined.

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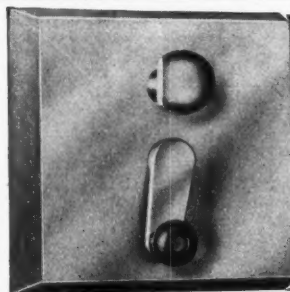
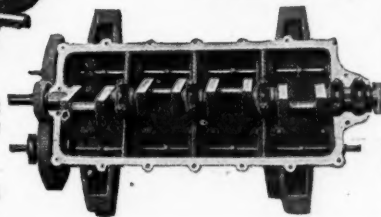
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Automobile Motors  
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Gas, Gasoline and Kerosene

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## ACORN Combi-LOCK

Operates same as any combination safe lock. 2,000 different combinations. No keys. Can be worked in the dark and without removing gloves. Prevents theft of car or unauthorized use of same by anybody.

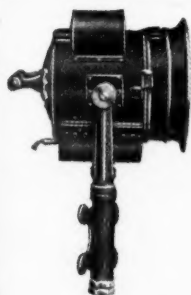
Insures long life for the batteries. Try it and if unsatisfactory we will refund money. If your dealer does not carry it order direct of us.

Price ... \$5.00

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If your car is equipped with it  
others slow down to let you pass.

YOU CAN SEE AROUND A  
CORNER WITH THIS LIGHT

We make Copper and Galvanized Iron  
Gasoline and Water Tanks, Bonnets and  
Sheet Metal Mud Guards.

Send us your Specifications for Estimates.

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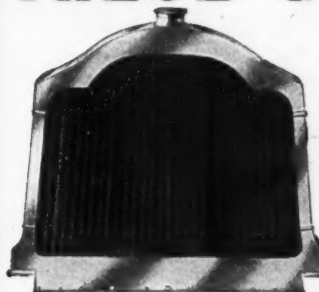
Lamp and Lantern Makers, and Workers in Sheet Metals

Send for Circular of Searchlight

88-90 Union Street, BOSTON

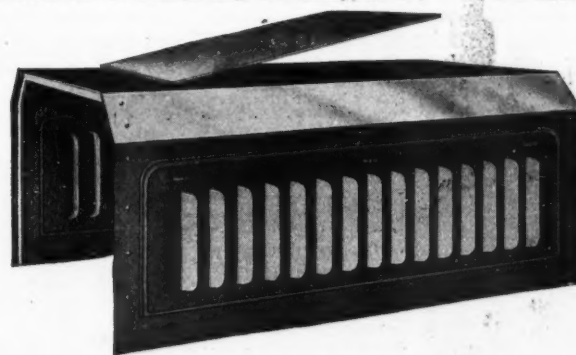
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USE LONG'S PATENT  
SPIRAL TUBING



WE ARE THE ONLY MFRS. OF  
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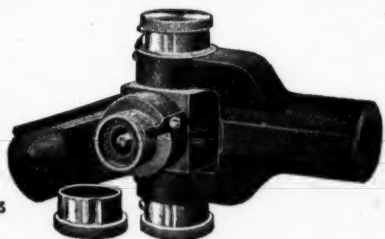
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Hardened  
Steel Bearings  
Interchangeable

One filling of  
Grease Cups  
lasts 3,000 miles



Send for  
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showing other  
Good Features  
of the  
**BEST**  
Joint made

BLOOD BROS. AUTOMOBILE & MACHINE CO.  
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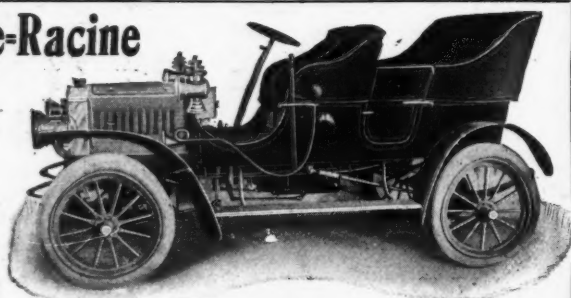
4 Models

\$750

850

1,100

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PIERCE-RACINE Cars are good cars. Guaranteed for one year. They are fast and great hill climbers. Let us send you our printed matter which tells all about them. They are the best for the price.

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RACINE, WISCONSIN

**Monogram Oils**

...Made by...

**Columbia Lubricants Co. of New York**

78 Broad Street NEW YORK CITY

**"FIRST AID TO AUTOMOBILES"****DISTRIBUTING DEPOTS**

...Also at...

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The Little Giant Sparking Battery.

If you are interested write to the

**CHICAGO PNEUMATIC TOOL CO.**

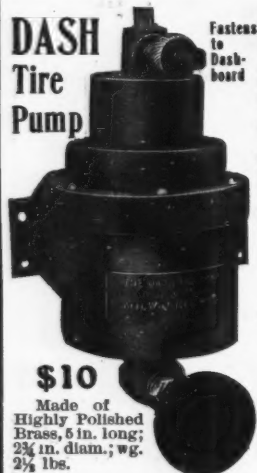
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**Quit Kicking**

and buy

**Storage Batteries**  
that have no equal.**The Little Giant**

is just that kind.

We manufacture  
**BATTERIES** for every  
purpose on earth.**The Duntley Washable**  
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**SPARKING BATTERY**  
is the best  
ever produced.**DASH**  
Tire  
Pump**\$10**Made of  
Highly Polished  
Brass, 5 in. long;  
2 3/4 in. diam.; wgt.  
2 1/2 lbs.Fastens  
to Dash-  
board**DASH Automatic TIRE PUMP**

Attach hose to tire; start engine and the job is done in three minutes. Always ready for use. Impossible to get out of order.

**"PERFECT" AUTOMATIC LOCKING BRAKES**  
Locks or releases at will by normal movement of operator's foot. Operates entirely free of ratchet when so desired.**"PERFECT" MUFFLER**  
**CUT-OUT VALVES**

Fit any car. Explosions cannot damage muffler.

Illustrated circulars describe each article. Write

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Eastern Agent, Chas. E. Miller, New York

Dealers who know a good thing will order early.

Style "A"  
Black, \$2.50  
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We have some that have been used for a short time at exceptionally low terms

— ASK FOR PRICES —

**THE ORLANDO F. WEBER CO.** 1322-24-26 Michigan Av.  
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Highest Award at St. Louis Exposition



1905 equipment consists of  
Adjustable Cushion Fork  
Double Grip Control  
Brook's Motorcycle Saddles  
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There is only one INDIAN  
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Springfield, Mass.

**WILLARD**  
SPARKING**BATTERIES**

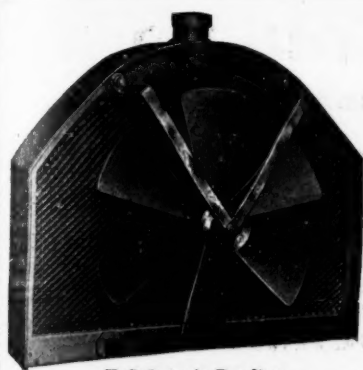
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**THE WILLARD STORAGE BATTERY CO.**  
CLEVELAND, OHIO.**CHEAP SPARK PLUGS****ARE EXTRAVAGANCE, NOT ECONOMY**

Never-Miss gains friends each day. There are reasons. More air space, solid porcelain, no nuts or springs to lose, remove the cap and you take porcelain out, clean and return, two minutes' time. Reasons enough, don't you think? Ask for NEVER-MISS. Trouble over. Never-Miss Battery Connection. The Corrugated Terminal. Best ever. Never-Miss Chain Repair Device. Get one today. Coils, Box and Dash. Ask the man. Ask today.

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## THE WHITLOCK COOLER

Tested and Adopted by  
**90 Per Cent**  
of the Leading  
Manufacturers of  
**HIGH GRADE CARS**  
FOR 1903-1904-1905

U. S. Patents Pending.  
Patented in England, France and Belgium.

Any Design or Style of Cooler Made to Order.

**THE WHITLOCK COIL PIPE CO., HARTFORD, CONN.**

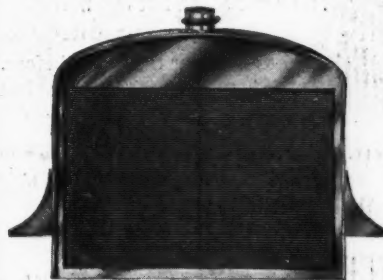
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For \$10.00 you can get the Form B Veeder Odometer which goes on the left steering arm, and for \$25.00 you can get the Form D, which goes on the dash. The latter type has two registers, one of which may be set to zero at will.

"It's Nice to Know  
How Far You Go."

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Cyclometers, Odometers, Tachometers, Counters and Fine Castings.

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**GOOD COOLERS**

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## "Cold Process"

For cleaning, stuffing, buffing and enameling all grades of Automobile trimmings. Makes soiled leathers and clothes clean and bright as new. Will not only restore the original color but will produce an entirely different one. The quickest, easiest, simplest and most inexpensive process known. Write for prices and particulars.

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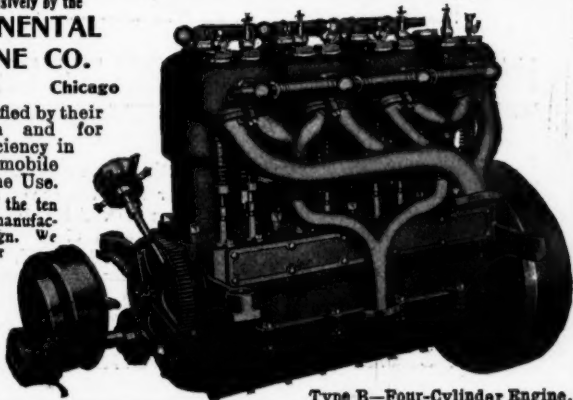
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Mfd. Exclusively by the  
**CONTINENTAL  
ENGINE CO.**

Fisher Bldg. Chicago

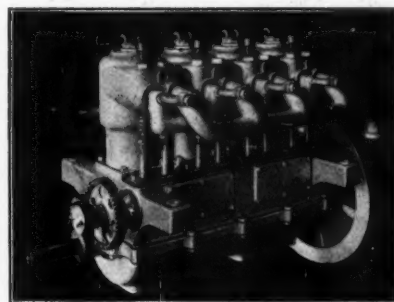
Are identified by their Perfection and for their Efficiency in both Automobile and Marine Use.

This is one of the ten types that we manufacture and design. We have particular types of Engines and Transmissions for Pleasure Vehicles, Trucks, Railway Apparatus and Marine Crafts.



Type B—Four-Cylinder Engine.

25 H. P. Vertical 16 H. P. Opposed



**HIGH-CLASS  
AUTOMOBILE  
MOTORS**

**THE A. STREIT MACHINE CO., CINCINNATI, O.**

The  
**"COAT  
..OF..  
MAIL"**  
Tire Protector

**POST MFG. CO.**  
1908 Broadway  
NEW YORK CITY

Has overcome the four mechanical weaknesses that make the tire problem the greatest drawback to motoring, namely (1) Puncturability, (2) Skidding, (3) Rim Cutting, (4) Tearing from Wheel, not to mention the general wear and tear. The "COAT OF MAIL" is **absolutely unpuncturable**.

Its teeth cannot calk up, but will give traction on any going.

The strain is carried clear around the tire and put on the felloe and spokes.

Your tire expense is reduced **at least two-thirds** and all the time the tire is absolutely protected against puncture, protected against skidding, protected from wear and tear, and cannot possibly pull off from the wheel. And there is no loss of resiliency.

Here is the solution of the great tire problems—the "COAT OF MAIL." Price from \$15 up.



**Baldwin  
Standard Chains**

are used  
on all high grade cars

Made **DETACHABLE** or **RIVETED**

Send for Catalogue

We also make Sprockets of all kinds

**BALDWIN CHAIN & MFG. CO.**

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**PETERSON & DRAPER**  
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SALES-AGENTS





No. 66

Non-breakable Man-in-Mirror Lens Searchlight Projector with swinging bracket. Burns acetylene gas.

### The Neverout

TRADE MARK

**Mirror Lens Searchlight** has always been the most powerful searchlight but our new **safety gas producer**

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Produces the whitest, steadiest and most penetrating light. Always ready for instant use.

Keeps carbide intact for months and prevents after-generation.

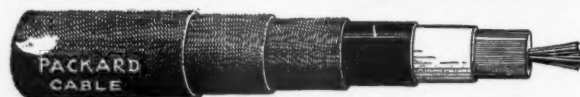
Simple, safe, economical, odorless.

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### Packard Enameled Ignition Cables



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### REMARKABLE TROUBLE-SAVERS

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The Packard Electric Company, Warren, Ohio

## STOP THAT NOISE!

### NEW PROCESS PINIONS

Will stop the racket made by your Time Gears, Pump Drive Gears or Igniter Gears, and will outwear all other kinds of Noiseless Pinions.

LET US HEAR FROM YOU.

THE NEW PROCESS RAW HIDE CO.

SYRACUSE, NEW YORK



Don't Throw Away Those Weak Batteries! \$\$\$ THEY ARE GOOD AND WORTH MONEY \$\$\$

25 to 50 per cent of your battery cost reduced, or a like increase in mileage run by the use of an entirely new device

### THE "ECONOMY" AUTOMOBILE SWITCH

It pays for itself on the first installation

GUARANTEED—POSITIVE—SIMPLE—SUBSTANTIAL—ORNAMENTAL

Sample by Mail on Receipt of Price, \$1.50

Discount to the trade.

Money refunded if not satisfactory.

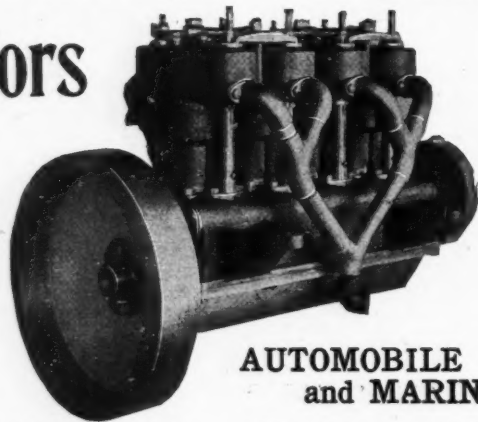
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## HERSCHELL-SPILLMAN

### Motors

H. P.  
16-18  
24-30  
45-55



AUTOMOBILE  
and MARINE

Herschell-Spillman Co., No. Tonawanda, N. Y.



### HARRIS OILS MAKE SPEEDY RUNNING

They afford the necessary lubrication, leave no deposit, do not carbonize in the cylinder or soot the spark plug. Their superior qualities have been proved by the most exacting tests on American and Foreign Cars. *ASK AT YOUR DEALERS FOR HARRIS OILS*

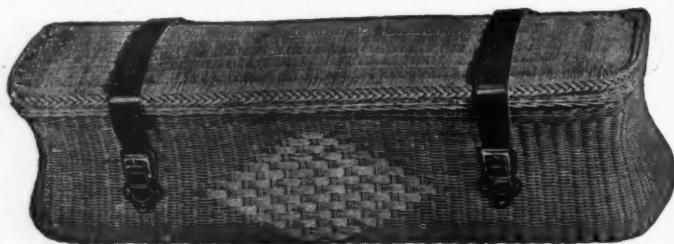
A. W. HARRIS OIL CO.

330 S. Water St.

Providence, R. I.

### POUNDED REED HAMPERS

FOR 1905 SIDE ENTRANCE CARS



Largest and most complete line of Hampers and Golf Baskets for all cars. 1905 Catalogue ready.

RATTAN NOVELTY CO.

Springfield, Mass.



The Only Lock that  
is a Lock

### The B. & J. Lockswitch

Applicable to any car. As reliable as a bank vault lock. As long as you have the key your car is safe.

ASK US MORE ABOUT IT

B. & J. MFG. CO.,

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## THE MARION CAR

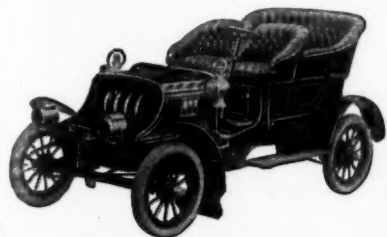
"Air Cooled."  
16 Horse Power.  
Beautiful Finish.  
Easy Riding.  
Reliable.

Keeps cool  
Develops the power.  
"Seeing is believing."  
A trial proves it.  
Time and test have shown it.

See our Agents

Marion Motor Car Co.

Indianapolis, Ind.



New York, cor. 38th St. and Broadway.  
Denver, 1558 Broadway.  
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Boston, 147 Columbus Ave.  
St. Louis, 47th and Olive Sts.

# The Moline

MOLINE AUTOMOBILE COMPANY,  
EAST MOLINE, ILL.

## At-- Night

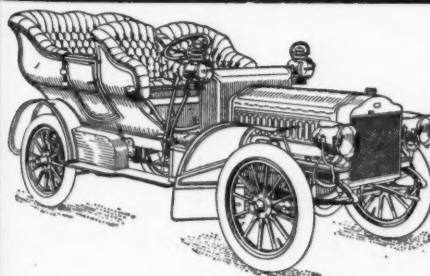
Double Service. The APPLE Automatic Sparker

has a two-fold value to every user of gas power for automobile, launch or stationary engine.

It gives absolutely sure ignition, more speed and more power. Does away with all belt, battery or commutator troubles. Besides this it gives ample power for three electric lights, whether engine is

running or standing still. Easily attached to any engine now using batteries. Our new gear-driven system is worthy of your attention. Write us for anything pertaining to ignition. We make over 80 articles for ignition purposes.

The Dayton Electrical Mfg. Co.,  
75 Beaver Building Dayton, Ohio



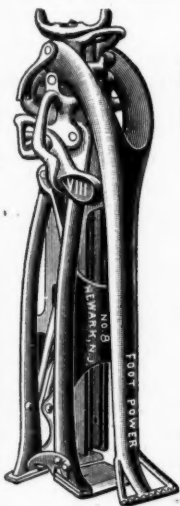
IT'S THE  
40 HORSE  
THOMAS  
"FLYER"  
\$3,000

AGENTS IN ALL PRINCIPAL CITIES  
ART CATALOGUE UPON REQUEST

E. R. THOMAS MOTOR CO.

1202 Niagara Street, Buffalo, N. Y.

Member Association Licensed Automobile Manufacturers.



## Searls' JACKS

No. 8

FOLDED FOR TOOL BOX

Usable like this, narrow base,  
or set up, broad base

ASK YOUR DEALER,  
or we deliver in the United States and Canada.

JERSEY BRAKE CO.

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## MUD

FORGET IT AND USE  
WEED'S TIRE GRIPS.  
POSITIVELY STOPS SLIPPING OR SKIDDING.  
THEY MAKE BAD ROADS GOOD.  
WEED CHAIN TIRE GRIP CO.  
SEND FOR BOOKLET "C" 28 MOORE ST.  
NEW YORK CITY.

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UP-TOWN

Corner 29th and Broadway  
New York

Rates \$1.50 up

Cafe a la carte

GEORGE W. MOORE, Manager

## SEND FOR DETAILS

OF THE 1905

## BUCKMOBILE

MODELS	RUNABOUT (15 H. P.)	\$900.00
	SIDE ENTRANCE TONNEAU	1,050.00
	BUSINESS WAGON	1,100.00

WAGON HAS TON CAPACITY

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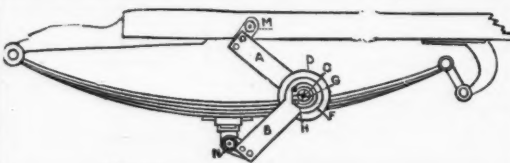
BLACK DIAMOND AUTOMOBILE CO.  
702 Genesee Street  
UTICA, N. Y.

When ordering a 1905 car **INSIST**  
that it be equipped with the

# HARTFORD SHOCK ABSORBER

Over 20,000 Shock Absorbers now in use in this country and Europe. No jumping of the car on rough roads, no lost traction or danger of breaking springs, saves the tires, is reliable, durable and easily attached; makes cobble-stones and rough roads seem like asphalt.

Adopted by  
**GEORGE N. PIERCE CO.** (Awarded the Grand Prize, St. Louis.)  
**F. I. A. T.** (Highest Long Distance Speed ever attained by any vehicle.)  
**RICHARD BRASIER** (Winner Gordon-Bennett Cup 1904.)  
**PUEGEOT** (Decorated at Paris Salon by President Loubet.)



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For cars under 1500 lbs., \$40 four suspensions. Applied at our factory, 390 Hudson Street, New York for \$10 additional.

FOR SALE BY ALL DEALERS  
WRITE FOR CIRCULAR

**HARTFORD SUSPENSION CO., 67 Vestry St., New York City**

EDWARD V. HARTFORD, President

## RANDS CANOPY, CAPE AND EXTENSION TOPS

**WHEELER MFG. CO.**

MILWAUKEE JCT.

DETROIT, MICH.

REST YOUR TIRES with the "SPRINGFIELD" AUTO LIFT



(Patented)

Showing Lift in Position to Receive Car.

You turn the crank, and the four wheels will raise 7 inches off the floor. Write for description and price.

**THE SHAWVER CO., Springfield, O.**

**FOR**

CIRCULATING-PUMPS  
COMMUTATORS  
CARBURETORS  
STEERING-WHEELS  
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ACTION**

**AUTO BRASS & ALUMINUM CO.**  
KEARSLEY ST. FLINT, MICH.

**CLEAN YOUR PLUGS**



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Every operator should have one. Saves you lots of trouble. Wire and Bristle with a Steel Scraper. **AGENTS WANTED.**

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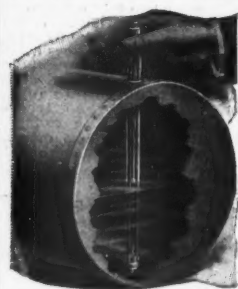
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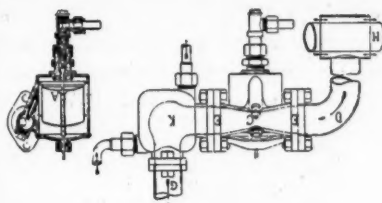
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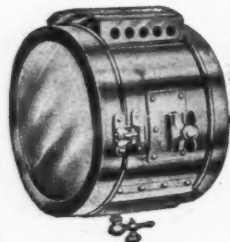


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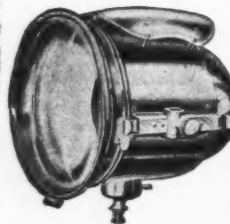


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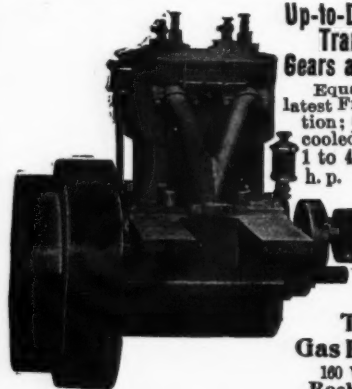
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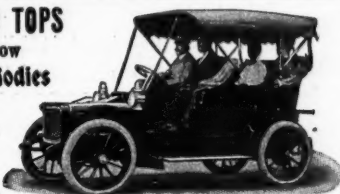
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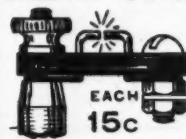
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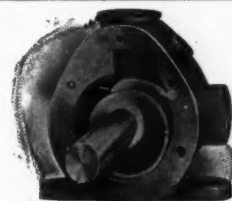
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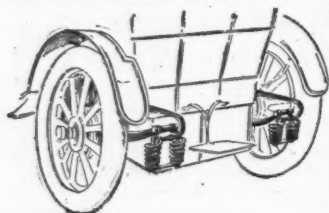
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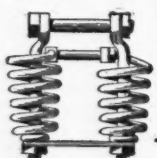
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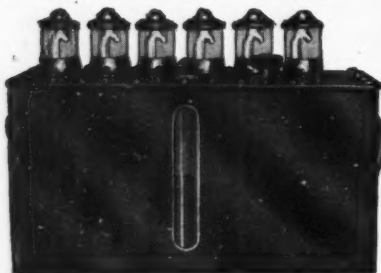


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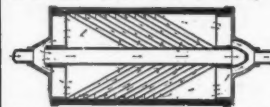
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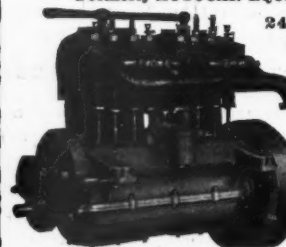
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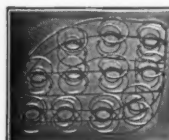
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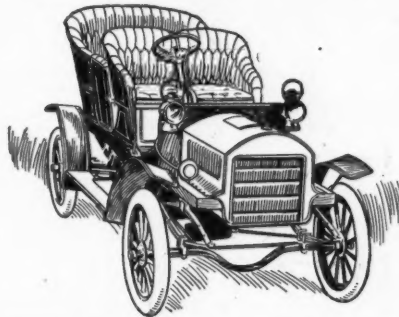
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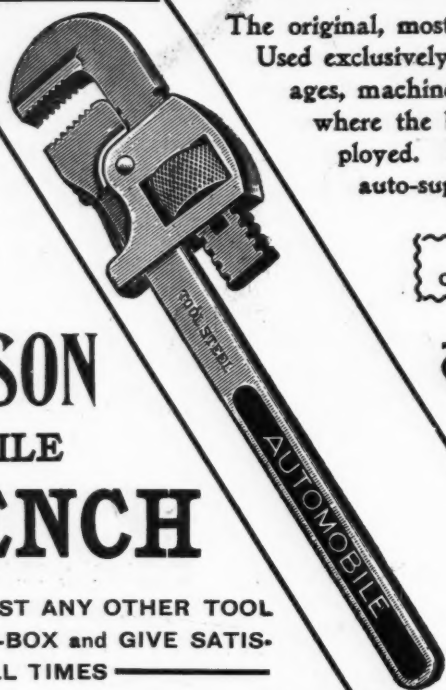
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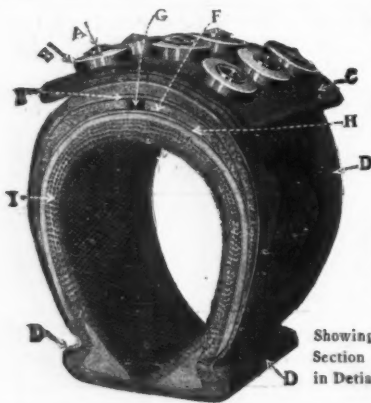
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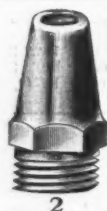
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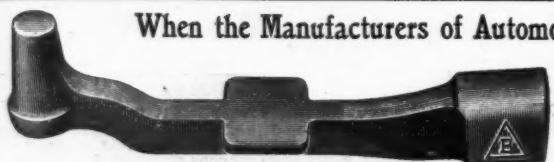
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